**Main Criteria:** Forward Education

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

**Subjects:** Mathematics, Science, Technology Education

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

# Forward Education

## Powering the Future with Wind Energy

**Alabama Courses of Study**
**Mathematics**
Grade **3** - Adopted: **2019/Impl. 2020**

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

| STRAND / DOMAIN | | Grade 3 Content Standards |
|---|---|---|
| **OBJECTIVE / CATEGORY** | | **Operations with Numbers: Base Ten** |
| **STANDARD** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| RELATED CONTENT / EXPECTATION | 11. | Use various strategies to add and subtract fluently within 1000. |

**Alabama Courses of Study**
**Mathematics**
Grade **4** - Adopted: **2019/Impl. 2020**

| STRAND / DOMAIN | | Mathematical Practices |
|---|---|---|
| OBJECTIVE / CATEGORY | MP1 | Make sense of problems and persevere in solving them. |
| OBJECTIVE / CATEGORY | MP2 | Reason abstractly and quantitatively. |
| OBJECTIVE / CATEGORY | MP3 | Construct viable arguments and critique the reasoning of others. |

| | | |
|---|---|---|
| OBJECTIVE / CATEGORY | MP4 | Model with mathematics. |
| OBJECTIVE / CATEGORY | MP5 | Use appropriate tools strategically. |
| **STRAND / DOMAIN** | | **Grade 4 Content Standards** |
| **OBJECTIVE / CATEGORY** | | **Operations with Numbers: Base Ten** |
| **STANDARD** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers.** |
| RELATED CONTENT / EXPECTATION | 10. | Use place value strategies to fluently add and subtract multi-digit whole numbers and connect strategies to the standard algorithm. |
| **STRAND / DOMAIN** | | **Grade 4 Content Standards** |
| **OBJECTIVE / CATEGORY** | | **Data Analysis** |
| **STANDARD** | | **Represent and interpret data.** |
| **RELATED CONTENT / EXPECTATION** | **20.** | **Interpret data in graphs (picture, bar, and line plots) to solve problems using numbers and operations.** |
| GRADE EXPECTATION | 20.b. | Solve problems involving addition and subtraction of fractions using information presented in line plots. |

**Alabama Courses of Study**

**Science**

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

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|---|---|---|
| **STRAND / DOMAIN** | **AL.4.PS.** | **PHYSICAL SCIENCE** |
| **OBJECTIVE / CATEGORY** | | **Energy** |
| STANDARD | 4.PS.4. | Design, construct, and test a device that changes energy from one form to another (e.g., electric circuits converting electrical energy into motion, light, or sound energy; a passive solar heater converting light energy into heat energy). |
| STANDARD | 4.PS.5. | Compile information to describe how the use of energy derived from natural renewable and nonrenewable resources affects the environment (e.g., constructing dams to harness energy from water, a renewable resource, while causing a loss of animal habitats; burning of fossil fuels, a nonrenewable resource, while causing an increase in air pollution; installing solar panels to harness energy from the sun, a renewable resource, while requiring specialized materials that necessitate mining). |

**Alabama Courses of Study**

**Technology Education**

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

| | | |
|---|---|---|
| **STRAND / DOMAIN** | **AL.DLCS.3.** | **Digital Literacy and Computer Science** |
| **OBJECTIVE / CATEGORY** | **3.1.** | **Computational Thinker** |
| **STANDARD** | | **Abstraction** |

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|---|---|---|
| RELATED CONTENT / EXPECTATION | 3.1.2. | Analyze a given list of sub-problems while addressing a larger problem. |

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|---|---|---|
| **STRAND / DOMAIN** | **AL.DLCS.3.** | **Digital Literacy and Computer Science** |
| **OBJECTIVE / CATEGORY** | **3.1.** | **Computational Thinker** |
| **STANDARD** | | **Algorithms** |
| RELATED CONTENT / EXPECTATION | 3.1.3. | Explain that different solutions exist for the same problem or sub-problem. |
| RELATED CONTENT / EXPECTATION | 3.1.5. | Create an algorithm to solve a problem as a collaborative team. |

**Alabama Courses of Study**

**Technology Education**

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

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|---|---|---|
| **STRAND / DOMAIN** | **AL.DLCS.4.** | **Digital Literacy and Computer Science** |
| **OBJECTIVE / CATEGORY** | **4.1.** | **Computational Thinker** |
| **STANDARD** | | **Abstraction** |
| RELATED CONTENT / EXPECTATION | 4.1.2. | Formulate a list of sub-problems to consider while addressing a larger problem. |

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|---|---|---|
| **STRAND / DOMAIN** | **AL.DLCS.4.** | **Digital Literacy and Computer Science** |
| **OBJECTIVE / CATEGORY** | **4.1.** | **Computational Thinker** |
| **STANDARD** | | **Algorithms** |
| RELATED CONTENT / EXPECTATION | 4.1.3. | Show that different solutions exist for the same problem or sub-problem. |

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|---|---|---|
| **STRAND / DOMAIN** | **AL.DLCS.4.** | **Digital Literacy and Computer Science** |
| **OBJECTIVE / CATEGORY** | **4.1.** | **Computational Thinker** |
| **STANDARD** | | **Programming and Development** |
| RELATED CONTENT / EXPECTATION | 4.1.7. | Create a working program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs, in collaboration with others. |

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|---|---|---|
| **STRAND / DOMAIN** | **AL.DLCS.4.** | **Digital Literacy and Computer Science** |

| OBJECTIVE / CATEGORY | 4.5. | Innovative Designer |
|---|---|---|
| STANDARD | | Design Thinking |
| RELATED CONTENT / EXPECTATION | 4.5.21. | Develop, test, and refine prototypes as part of a cyclical design process to solve a simple problem. |

**Alaska Content and Performance Standards**

**Mathematics**

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

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

| PERFORMANCE / CONTENT STANDARD | AK.3.NBT. | Number and Operations in Base Ten |
|---|---|---|
| GRADE LEVEL EXPECTATION / STRAND | | Use place value understanding and properties of operations to perform multi-digit arithmetic. |
| GOAL | 3.NBT.2. | Use strategies and/or algorithms to fluently add and subtract with numbers up to 1000, demonstrating understanding of place value, properties of operations, and/or the relationship between addition and subtraction. |

**Alaska Content and Performance Standards**

**Mathematics**

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

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

| | | |
|---|---|---|
| GRADE LEVEL EXPECTATION / STRAND | MP.2. | Reason abstractly and quantitatively. |
| GRADE LEVEL EXPECTATION / STRAND | MP.3. | Construct viable arguments and critique the reasoning of others. |
| GRADE LEVEL EXPECTATION / STRAND | MP.4. | Model with mathematics. |
| GRADE LEVEL EXPECTATION / STRAND | MP.5. | Use appropriate tools strategically. |
| **PERFORMANCE / CONTENT STANDARD** | **AK.4.NBT.** | **Number and Operations in Base Ten** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| GOAL | 4.NBT.4. | Fluently add and subtract multi-digit whole numbers using any algorithm. Verify the reasonableness of the results. |
| **PERFORMANCE / CONTENT STANDARD** | **AK.4.MD.** | **Measurement and Data** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Represent and interpret data.** |
| GOAL | 4.MD.5. | 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. |

**Alaska Content and Performance Standards**

**Science**

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

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|---|---|---|
| **PERFORMANCE / CONTENT STANDARD** | | **Forces and Interactions** |
| GRADE LEVEL EXPECTATION / STRAND | 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. |
| **PERFORMANCE / CONTENT STANDARD** | | **Engineering Design** |
| GRADE LEVEL EXPECTATION / STRAND | 3-5-ETS1-1. | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |

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

**Alaska Content and Performance Standards**
**Science**
Grade **4** - Adopted: **2019**

| | | |
|---|---|---|
| **PERFORMANCE / CONTENT STANDARD** | | **Energy** |
| GRADE LEVEL EXPECTATION / STRAND | 4-PS3-4. | Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. |
| GRADE LEVEL EXPECTATION / STRAND | 4-ESS3-1. | Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. |
| **PERFORMANCE / CONTENT STANDARD** | | **Engineering Design** |
| GRADE LEVEL EXPECTATION / STRAND | 3-5-ETS1-1. | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |
| GRADE LEVEL EXPECTATION / STRAND | 3-5-ETS1-2. | Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. |
| GRADE LEVEL EXPECTATION / STRAND | 3-5-ETS1-3. | Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. |

**Alaska Content and Performance Standards**
**Technology Education**
Grade **3** - Adopted: **2019**

| | | |
|---|---|---|
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Computer Science Standards** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Algorithms and Programming** |
| **GOAL** | | **Algorithms** |
| INDICATOR | 3.AP.A.01. | Create and follow algorithms to accomplish a simple task or solve a simple problem |
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Digital Literacy Standards** |

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|---|---|---|
| **GRADE LEVEL EXPECTATION / STRAND** | | **Innovative Design** |
| GOAL | 3-5.ID.4. | Students demonstrate perseverance when working with open-ended problems. |
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Digital Literacy Standards** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Computational Thinking** |
| GOAL | 3-5.CT.1. | Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator. |
| GOAL | 3-5.CT.3. | Students break down problems into smaller parts, identify key information and propose solutions. |
| GOAL | 3-5.CT.4. | Students understand and explore basic concepts related to automation, patterns and algorithmic thinking. |
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Digital Literacy Standards** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Global Collaboration** |
| GOAL | 3-5.GC.3. | Students perform a variety of roles within a team using age-appropriate technology to complete a project or solve a problem. |

**Alaska Content and Performance Standards**

**Technology Education**

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

| | | |
|---|---|---|
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Computer Science Standards** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Algorithms and Programming** |
| **GOAL** | | **Algorithms** |
| INDICATOR | 4.AP.A.01. | Create, compare & refine multiple algorithms for the same task. |
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Digital Literacy Standards** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Innovative Design** |
| GOAL | 3-5.ID.4. | Students demonstrate perseverance when working with open-ended problems. |
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Digital Literacy Standards** |

| | | |
|---|---|---|
| **GRADE LEVEL EXPECTATION / STRAND** | | **Computational Thinking** |
| GOAL | 3-5.CT.1. | Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator. |
| GOAL | 3-5.CT.3. | Students break down problems into smaller parts, identify key information and propose solutions. |
| GOAL | 3-5.CT.4. | Students understand and explore basic concepts related to automation, patterns and algorithmic thinking. |
| **PERFORMANCE / CONTENT STANDARD** | | **Alaska Digital Literacy Standards** |
| **GRADE LEVEL EXPECTATION / STRAND** | | **Global Collaboration** |
| GOAL | 3-5.GC.3. | Students perform a variety of roles within a team using age-appropriate technology to complete a project or solve a problem. |

**Arizona's College and Career Ready Standards**
**Mathematics**
Grade **3** - Adopted: **2018**

| | | |
|---|---|---|
| **STRAND** | | **Standards for Mathematical Practice** |
| CONCEPT / STANDARD | MP.1 | Make sense of problems and persevere in solving them. |
| CONCEPT / STANDARD | MP.2 | Reason abstractly and quantitatively. |
| CONCEPT / STANDARD | MP.3 | Construct viable arguments and critique the reasoning of others. |
| CONCEPT / STANDARD | MP.4 | Model with mathematics. |
| CONCEPT / STANDARD | MP.5 | Use appropriate tools strategically. |
| **STRAND** | | **Number and Operations in Base Ten (NBT)** |
| **CONCEPT / STANDARD** | **3.NBT.A** | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 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. |

**Arizona's College and Career Ready Standards**
**Mathematics**
Grade **4** - Adopted: **2018**

| | | |
|---|---|---|
| **STRAND** | | **Standards for Mathematical Practice** |

| | | |
|---|---|---|
| CONCEPT / STANDARD | MP.1 | Make sense of problems and persevere in solving them. |
| CONCEPT / STANDARD | MP.2 | Reason abstractly and quantitatively. |
| CONCEPT / STANDARD | MP.3 | Construct viable arguments and critique the reasoning of others. |
| CONCEPT / STANDARD | MP.4 | Model with mathematics. |
| CONCEPT / STANDARD | MP.5 | Use appropriate tools strategically. |
| **STRAND** | | **Number and Operations in Base Ten (NBT)** |
| **CONCEPT / STANDARD** | **4.NBT.B** | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 4.NBT.B.4 | Fluently add and subtract multi-digit whole numbers using a standard algorithm. |
| **STRAND** | | **Measurement and Data (MD)** |
| **CONCEPT / STANDARD** | **4.MD.B** | **Represent and interpret data.** |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 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. |

**Arizona's College and Career Ready Standards**
**Science**
Grade **3** - Adopted: **2018**

| | | |
|---|---|---|
| **STRAND** | | **Core Ideas for Using Science** |
| CONCEPT / STANDARD | U2: | The knowledge produced by science is used in engineering and technologies to solve problems and/or create products. |

**Arizona's College and Career Ready Standards**
**Science**
Grade **4** - Adopted: **2018**

| | | |
|---|---|---|
| **STRAND** | | **Core Ideas for Using Science** |
| CONCEPT / STANDARD | U2: | The knowledge produced by science is used in engineering and technologies to solve problems and/or create products. |
| **STRAND** | | **Fourth Grade: Systems and System Models; Energy and Matter; Stability and Change** |
| **CONCEPT / STANDARD** | | **Physical Sciences: Students develop an understanding of how Earth's resources can be transformed into different forms of energy. Students develop a better understanding of electricity and magnetism.** |

| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | | Physical Science Standards |
|---|---|---|
| OBJECTIVE / GRADE LEVEL EXPECTATION | 4.P4U3.4. | Engage in argument from evidence on the use and impact of renewable and nonrenewable resources to generate electricity. |

**Arizona's College and Career Ready Standards**

**Technology Education**

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

| STRAND | | Arizona Educational Technology Standards 2022 |
|---|---|---|
| CONCEPT / STANDARD | Standard 4. | Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.4.a. | Students, in collaboration with an educator, explore and practice a design process by generating ideas to solve a problem by planning, creating and testing innovative products that are shared with others. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.4.b. | Students, in collaboration with an educator, use digital and/or non-digital tools to plan and manage a design process. |

| STRAND | | Arizona Educational Technology Standards 2022 |
|---|---|---|
| CONCEPT / STANDARD | Standard 5. | Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.5.a. | Students, in collaboration with an educator, identify, explore or solve problems by selecting technology for data analysis, modeling, and algorithmic thinking. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.5.c. | Students, in collaboration with an educator, break down problems into smaller parts, identify key information, and propose solutions. |

| STRAND | | Arizona Educational Technology Standards 2022 |
|---|---|---|
| CONCEPT / STANDARD | Standard 6. | Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.6.c. | Students, in collaboration with an educator, create digital artifacts using digital tools to communicate ideas visually, graphically, and/or auditorily. |

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

| STRAND | | Computer Science |
|---|---|---|
| CONCEPT / STANDARD | | Practices |

| | | |
|---|---|---|
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | **Practice 3.** | **Recognizing and Defining Computational Problems: The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 3.1. | Identify complex, interdisciplinary, real-world problems that can be solved computationally. |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 3.2. | Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. |
| **STRAND** | | **Computer Science** |
| **CONCEPT / STANDARD** | | **Practices** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | **Practice 5.** | **Creating Computational Artifacts: The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 5.2. | Create a computational artifact for practical intent, personal expression, or to address a societal issue. |
| **STRAND** | | **Computer Science** |
| **CONCEPT / STANDARD** | | **Practices** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | **Practice 6.** | **Testing and Refining Computational Artifacts: Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts.** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 6.1. | Systematically test computational artifacts by considering all scenarios and using test cases. |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 6.3. | Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility. |
| **STRAND** | | **Computer Science** |
| **CONCEPT / STANDARD** | | **Concept: Algorithms and Programming (AP)** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | | **Subconcept: Algorithms (A)** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 3.AP.A.1. | Recognize and compare multiple algorithms for the same task and determine which are effective. Practice(s): Developing and Using Abstractions: 4.4 |

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

| STRAND | | Arizona Educational Technology Standards 2022 |
| --- | --- | --- |
| **CONCEPT / STANDARD** | **Standard 4.** | **Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.4.a. | Students, in collaboration with an educator, explore and practice a design process by generating ideas to solve a problem by planning, creating and testing innovative products that are shared with others. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.4.b. | Students, in collaboration with an educator, use digital and/or non-digital tools to plan and manage a design process. |

| STRAND | | Arizona Educational Technology Standards 2022 |
| --- | --- | --- |
| **CONCEPT / STANDARD** | **Standard 5.** | **Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.** |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.5.a. | Students, in collaboration with an educator, identify, explore or solve problems by selecting technology for data analysis, modeling, and algorithmic thinking. |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.5.c. | Students, in collaboration with an educator, break down problems into smaller parts, identify key information, and propose solutions. |

| STRAND | | Arizona Educational Technology Standards 2022 |
| --- | --- | --- |
| **CONCEPT / STANDARD** | **Standard 6.** | **Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.** |
| PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL | 3-5.6.c. | Students, in collaboration with an educator, create digital artifacts using digital tools to communicate ideas visually, graphically, and/or auditorily. |

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

| STRAND | | Computer Science |
| --- | --- | --- |
| **CONCEPT / STANDARD** | | **Practices** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | **Practice 3.** | **Recognizing and Defining Computational Problems: The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 3.1. | Identify complex, interdisciplinary, real-world problems that can be solved computationally. |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 3.2. | Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. |

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|---|---|---|
| **STRAND** | | **Computer Science** |
| **CONCEPT / STANDARD** | | **Practices** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | **Practice 5.** | **Creating Computational Artifacts: The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 5.2. | Create a computational artifact for practical intent, personal expression, or to address a societal issue. |

| | | |
|---|---|---|
| **STRAND** | | **Computer Science** |
| **CONCEPT / STANDARD** | | **Practices** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | **Practice 6.** | **Testing and Refining Computational Artifacts: Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts.** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 6.1. | Systematically test computational artifacts by considering all scenarios and using test cases. |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 6.3. | Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility. |

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|---|---|---|
| **STRAND** | | **Computer Science** |
| **CONCEPT / STANDARD** | | **Concept: Algorithms and Programming (AP)** |
| **PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL** | | **Subconcept: Algorithms (A)** |
| OBJECTIVE / GRADE LEVEL EXPECTATION | 4.AP.A.1. | Compare and refine multiple algorithms for the same task and determine which is the most effective. Practice(s): Testing and Refining Computational Artifacts, Recognizing and Defining Computational Problems: 6.3 |

**Arkansas Standards**

**Mathematics**

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

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|---|---|---|
| **STRAND / TOPIC** | | **Grade 3 Math Standards** |
| **CONTENT STANDARD** | **3.CAR.** | **Computation & Algebraic Reasoning** |
| **PERFORMANCE EXPECTATION** | | **Operations & Properties - Students perform operations using place value understanding and properties of operations.** |
| BENCHMARK / PROFICIENCY | 3.CAR.1. | Use computational fluency to add and subtract three-digit whole numbers, using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. |

| STRAND / TOPIC | | Grade 3 Math Standards |
|---|---|---|
| CONTENT STANDARD | 3.DA. | Data Analysis |
| PERFORMANCE EXPECTATION | | Charts, Graphs, & Tables - Students organize and analyze data. |
| BENCHMARK / PROFICIENCY | 3.DA.2. | Solve one and two-step problems, using categorical data represented with a scaled picture graph, scaled bar graph, and a line plot. |

**Arkansas Standards**
**Mathematics**
Grade **4** - Adopted: **2023**

| STRAND / TOPIC | | Grade 4 Math Standards |
|---|---|---|
| CONTENT STANDARD | 4.CAR. | Computation & Algebraic Reasoning |
| PERFORMANCE EXPECTATION | | Operations & Properties - Students perform operations, using place value understanding and properties of operations. |
| BENCHMARK / PROFICIENCY | 4.CAR.2. | Use computational fluency to add and subtract whole numbers up to 1,000,000 by using strategies and algorithms, including the standard algorithm, with mastery by the end of fourth grade. |

| STRAND / TOPIC | | Grade 4 Math Standards |
|---|---|---|
| CONTENT STANDARD | 4.DA. | Data Analysis |
| PERFORMANCE EXPECTATION | | Charts, Graphs, & Tables - Students organize and analyze data. |
| BENCHMARK / PROFICIENCY | 4.DA.1. | Collect and interpret data from observations, surveys, and experiments; represent data using frequency tables and scaled bar graphs. |
| BENCHMARK / PROFICIENCY | 4.DA.2. | Use a line plot to display a data set of measurements in fractions of a unit, solving problems involving addition and subtraction of fractions with like denominators using data presented in line plots. |

**Arkansas Standards**
**Science**
Grade **3** - Adopted: **2016**

| STRAND / TOPIC | AR.SC.1. | Forces and Interactions |
|---|---|---|
| CONTENT STANDARD | | Students who demonstrate understanding can: |
| 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. |

| STRAND / TOPIC | AR.SC.5. | Engineering, Technology, and Applications of Science |
|---|---|---|

| | | |
|---|---|---|
| **CONTENT STANDARD** | | **Students who demonstrate understanding can:** |
| PERFORMANCE EXPECTATION | 3-ETS1-1. | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |
| PERFORMANCE EXPECTATION | 3-ETS1-2. | Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. |
| PERFORMANCE EXPECTATION | 3-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. |

**Arkansas Standards**
**Science**
Grade **4** - Adopted: **2016**

| | | |
|---|---|---|
| **STRAND / TOPIC** | **AR.SC.3.** | **Energy** |
| **CONTENT STANDARD** | | **Students who demonstrate understanding can:** |
| PERFORMANCE EXPECTATION | 4-PS3-4. | Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. |
| PERFORMANCE 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 / TOPIC** | **AR.SC.5.** | **Engineering, Technology, and Applications of Science** |
| **CONTENT STANDARD** | | **Students who demonstrate understanding can:** |
| PERFORMANCE EXPECTATION | 4-ETS1-1. | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |
| PERFORMANCE EXPECTATION | 4-ETS1-2. | Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. |
| PERFORMANCE EXPECTATION | 4-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. |

**Arkansas Standards**
**Technology Education**
Grade **3** - Adopted: **2020/Beginning 2021**

| | | |
|---|---|---|
| **STRAND / TOPIC** | | **Computer Science: K-4 Standards Document** |
| **CONTENT STANDARD** | | **Computational Thinking and Problem Solving** |

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|---|---|---|
| **PERFORMANCE EXPECTATION** | | **Content Cluster 1: Students will analyze and utilize problem-solving strategies.** |
| BENCHMARK / PROFICIENCY | CSK8.G3.1.1. | Solve problems using a defined process |
| BENCHMARK / PROFICIENCY | CSK8.G3.1.3. | Construct innovative solutions to level-appropriate problems collaboratively |

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|---|---|---|
| **STRAND / TOPIC** | | **Computer Science: K-4 Standards Document** |
| **CONTENT STANDARD** | | **Algorithms and Programs** |
| **PERFORMANCE EXPECTATION** | | **Content Cluster 5: Students will create, evaluate, and modify algorithms.** |
| BENCHMARK / PROFICIENCY | CSK8.G3.5.1. | Create and follow algorithms to accomplish a task or solve a problem |
| BENCHMARK / PROFICIENCY | CSK8.G3.5.2. | Design and test algorithms collaboratively using technology |
| BENCHMARK / PROFICIENCY | CSK8.G3.5.4. | Identify and correct multiple errors within an algorithm that accomplishes a level-appropriate task or solves a level-appropriate problem |

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| **STRAND / TOPIC** | | **Computer Science: K-4 Standards Document** |
| **CONTENT STANDARD** | | **Algorithms and Programs** |
| **PERFORMANCE EXPECTATION** | | **Content Cluster 6: Students will create programs to solve problems.** |
| BENCHMARK / PROFICIENCY | CSK8.G3.6.1. | Use a block-based programming language individually and collaboratively to solve level-appropriate problems |
| BENCHMARK / PROFICIENCY | CSK8.G3.6.3. | Improve or remix existing block-based programs |

**Arkansas Standards**
**Technology Education**
Grade **4** - Adopted: **2020/Beginning 2021**

| | | |
|---|---|---|
| **STRAND / TOPIC** | | **Computer Science: K-4 Standards Document** |
| **CONTENT STANDARD** | | **Computational Thinking and Problem Solving** |
| **PERFORMANCE EXPECTATION** | | **Content Cluster 1: Students will analyze and utilize problem-solving strategies.** |
| BENCHMARK / PROFICIENCY | CSK8.G4.1.1. | Examine the process of problem solving and how it applies to algorithmic problem solving |

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| BENCHMARK / PROFICIENCY | CSK8.G4.1.3. | Construct innovative solutions to level-appropriate problems collaboratively |
| BENCHMARK / PROFICIENCY | CSK8.G4.1.4. | Apply strategies for solving simple hardware and software problems that may occur during use |
| **STRAND / TOPIC** | | **Computer Science: K-4 Standards Document** |
| **CONTENT STANDARD** | | **Algorithms and Programs** |
| **PERFORMANCE EXPECTATION** | | **Content Cluster 5: Students will create, evaluate, and modify algorithms.** |
| BENCHMARK / PROFICIENCY | CSK8.G4.5.1. | Create and follow algorithms to accomplish a task or solve a problem |
| BENCHMARK / PROFICIENCY | CSK8.G4.5.2. | Design and test algorithms collaboratively using technology |
| BENCHMARK / PROFICIENCY | CSK8.G4.5.4. | Identify and correct multiple errors within an algorithm that accomplishes a level-appropriate task or solves a level-appropriate problem |
| **STRAND / TOPIC** | | **Computer Science: K-4 Standards Document** |
| **CONTENT STANDARD** | | **Algorithms and Programs** |
| **PERFORMANCE EXPECTATION** | | **Content Cluster 6: Students will create programs to solve problems.** |
| BENCHMARK / PROFICIENCY | CSK8.G4.6.1. | Use a block-based programming language individually and collaboratively to solve level-appropriate problems |
| BENCHMARK / PROFICIENCY | CSK8.G4.6.3. | Improve or remix existing block-based programs |

**California Content Standards**

**Mathematics**

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

| **CONTENT STANDARD / DOMAIN / PART** | **CA.CC.MP.** | **Standards for Mathematical Practice** |
|---|---|---|
| PERFORMANCE STANDARD / MODE | MP.1. | Make sense of problems and persevere in solving them. |
| PERFORMANCE STANDARD / MODE | MP.2. | Reason abstractly and quantitatively. |

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|---|---|---|
| PERFORMANCE STANDARD / MODE | MP.3. | Construct viable arguments and critique the reasoning of others. |
| PERFORMANCE STANDARD / MODE | MP.4. | Model with mathematics. |
| PERFORMANCE STANDARD / MODE | MP.5. | Use appropriate tools strategically. |
| **CONTENT STANDARD / DOMAIN / PART** | **CA.CC.3.NBT.** | **Number and Operations in Base Ten** |
| **PERFORMANCE STANDARD / MODE** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| EXPECTATION / SUBSTRAND | 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. |

**California Content Standards**

**Mathematics**

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

| | | |
|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | **CA.CC.MP.** | **Standards for Mathematical Practice** |
| PERFORMANCE STANDARD / MODE | MP.1. | Make sense of problems and persevere in solving them. |
| PERFORMANCE STANDARD / MODE | MP.2. | Reason abstractly and quantitatively. |
| PERFORMANCE STANDARD / MODE | MP.3. | Construct viable arguments and critique the reasoning of others. |
| PERFORMANCE STANDARD / MODE | MP.4. | Model with mathematics. |
| PERFORMANCE STANDARD / MODE | MP.5. | Use appropriate tools strategically. |
| **CONTENT STANDARD / DOMAIN / PART** | **CA.CC.4.NBT.** | **Number and Operations in Base Ten** |
| **PERFORMANCE STANDARD / MODE** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |

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|---|---|---|
| EXPECTATION / SUBSTRAND | 4.NBT.4. | Fluently add and subtract multi-digit whole numbers using the standard algorithm. |

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|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | **CA.CC.4.MD.** | **Measurement and Data** |
| **PERFORMANCE STANDARD / MODE** | | **Represent and interpret data.** |
| EXPECTATION / SUBSTRAND | 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. |

**California Content Standards**

**Science**

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

| | | |
|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | **CA.3-PS.** | **PHYSICAL SCIENCE** |
| **PERFORMANCE STANDARD / MODE** | **3-PS2.** | **Motion and Stability: Forces and Interactions** |
| **EXPECTATION / SUBSTRAND** | | **Students who demonstrate understanding can:** |
| FOUNDATION / PROFICIENCY LEVEL | 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. |

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

**California Content Standards**

**Science**

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

| | | |
|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | **CA.4-PS.** | **PHYSICAL SCIENCE** |

| | | |
|---|---|---|
| **PERFORMANCE STANDARD / MODE** | **4-PS3.** | **Energy** |
| **EXPECTATION / SUBSTRAND** | | **Students who demonstrate understanding can:** |
| FOUNDATION / PROFICIENCY LEVEL | 4-PS3-4. | Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. |

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|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | **CA.4-ESS.** | **EARTH AND SPACE SCIENCE** |
| **PERFORMANCE STANDARD / MODE** | **4-ESS3.** | **Earth and Human Activity** |
| **EXPECTATION / SUBSTRAND** | | **Students who demonstrate understanding can:** |
| FOUNDATION / PROFICIENCY LEVEL | 4-ESS3-1. | Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. |

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

**California Content Standards**

**Technology Education**

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

| | | |
|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | | **Computer Science Core Practices** |
| **PERFORMANCE STANDARD / MODE** | **P3.** | **Core Practice 3 – Recognizing and Defining Computational Problems** |
| EXPECTATION / SUBSTRAND | P3.1. | Identify complex, interdisciplinary, real-world problems that can be solved computationally. |

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|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | | **Algorithms & Programming** |
| **PERFORMANCE STANDARD / MODE** | | **Program Development** |
| EXPECTATION / SUBSTRAND | 3-5.AP.15. | Use an iterative process to plan and develop a program by considering the perspectives and preferences of others. (P1.1, P5.1) |
| EXPECTATION / SUBSTRAND | 3-5.AP.19. | Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2) |

**California Content Standards**
**Technology Education**
Grade **4** - Adopted: **2018**

| | | |
|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | | **Computer Science Core Practices** |
| **PERFORMANCE STANDARD / MODE** | **P3.** | **Core Practice 3 – Recognizing and Defining Computational Problems** |
| EXPECTATION / SUBSTRAND | P3.1. | Identify complex, interdisciplinary, real-world problems that can be solved computationally. |

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|---|---|---|
| **CONTENT STANDARD / DOMAIN / PART** | | **Algorithms & Programming** |
| **PERFORMANCE STANDARD / MODE** | | **Program Development** |
| EXPECTATION / SUBSTRAND | 3-5.AP.15. | Use an iterative process to plan and develop a program by considering the perspectives and preferences of others. (P1.1, P5.1) |
| EXPECTATION / SUBSTRAND | 3-5.AP.19. | Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2) |

**Colorado Academic Standards (CAS)**
**Mathematics**
Grade **3** - Adopted: **2018**

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

| | | |
|---|---|---|
| **CONTENT AREA** | | **Third Grade, Standard 1. Number and Quantity** |
| **STANDARD** | **3.NBT.A.** | **Number & Operations in Base Ten: Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of algorithms may be used.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| EVIDENCE OUTCOMES | 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. (CCSS: 3.NBT.A.2) |

**Colorado Academic Standards (CAS)**

**Mathematics**

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

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

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|---|---|---|
| **CONTENT AREA** | | **Fourth Grade, Standard 1. Number and Quantity** |
| **STANDARD** | **4.NBT.B.** | **Number & Operations in Base Ten: Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| EVIDENCE OUTCOMES | 4.NBT.B.4. | Fluently add and subtract multi-digit whole numbers using the standard algorithm. (CCSS: 4.NBT.B.4) |

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|---|---|---|
| **CONTENT AREA** | | **Fourth Grade, Standard 3. Data, Statistics, and Probability** |
| **STANDARD** | **4.MD.B.** | **Measurement & Data: Represent and interpret data.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| EVIDENCE OUTCOMES | 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. (CCSS: 4.MD.B.4) |

**Colorado Academic Standards (CAS)**

**Science**

| CONTENT AREA | | Prepared Graduates in Science |
|---|---|---|
| STANDARD | 1 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter. |
| STANDARD | 2 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects. |
| STANDARD | 3 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how energy is transferred and conserved. |
| STANDARD | 4 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how waves are used to transfer energy and information. |
| STANDARD | 5 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how individual organisms are configured and how these structures function to support life, growth, behavior and reproduction. |
| STANDARD | 6 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how living systems interact with the biotic and abiotic environment. |
| STANDARD | 7 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how genetic and environmental factors influence variation of organisms across generations. |
| STANDARD | 8 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how natural selection drives biological evolution accounting for the unity and diversity of organisms. |
| STANDARD | 9 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding the universe and Earth's place in it. |
| STANDARD | 10 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how and why Earth is constantly changing. |
| STANDARD | 11 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how human activities and the Earth's surface processes interact. |

| CONTENT AREA | SC.3.1. | Physical Science |
|---|---|---|
| **STANDARD** | **SC.3.1.1.** | **Patterns of motion can be used to predict future motion.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| **EVIDENCE OUTCOMES** | | **Students Can:** |
| INDICATOR | SC.3.1.1.b. | Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. (3-PS2-2) |

| CONTENT AREA | | Prepared Graduates in Science |
|---|---|---|
| STANDARD | 1 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter. |
| STANDARD | 2 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects. |
| STANDARD | 3 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how energy is transferred and conserved. |
| STANDARD | 4 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how waves are used to transfer energy and information. |
| STANDARD | 5 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how individual organisms are configured and how these structures function to support life, growth, behavior and reproduction. |
| STANDARD | 6 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how living systems interact with the biotic and abiotic environment. |
| STANDARD | 7 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how genetic and environmental factors influence variation of organisms across generations. |
| STANDARD | 8 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how natural selection drives biological evolution accounting for the unity and diversity of organisms. |
| STANDARD | 9 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding the universe and Earth's place in it. |
| STANDARD | 10 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how and why Earth is constantly changing. |
| STANDARD | 11 | Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how human activities and the Earth's surface processes interact. |

| CONTENT AREA | SC.4.1. | Physical Science |
|---|---|---|
| **STANDARD** | **SC.4.1.1.** | **The faster an object moves the more energy it has.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| **EVIDENCE OUTCOMES** | | **Students Can:** |

| | | |
|---|---|---|
| INDICATOR | SC.4.1.1.a. | Use evidence to construct an explanation relating the speed of an object to the energy of that object. (4-PS3-1) |

| **CONTENT AREA** | **SC.4.1.** | **Physical Science** |
|---|---|---|
| **STANDARD** | **SC.4.1.4.** | **Energy can be produced, used or released by converting stored energy.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| **EVIDENCE OUTCOMES** | | **Students Can:** |
| INDICATOR | SC.4.1.4.a. | Apply scientific ideas to design, test and refine a device that converts energy from one form to another. (4-PS3-4) |

| **CONTENT AREA** | **SC.4.3.** | **Earth and Space Science** |
|---|---|---|
| **STANDARD** | **SC.4.3.4.** | **Energy and fuels that humans use are derived from natural sources and their use affects the environment in multiple ways.** |
| **CONCEPTS AND SKILLS / EVIDENCE OUTCOMES** | | **Evidence Outcomes** |
| **EVIDENCE OUTCOMES** | | **Students Can:** |
| INDICATOR | SC.4.3.4.a. | Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. (4-ESS3-1) |

**Connecticut State Standards**

**Mathematics**

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

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

| | | |
|---|---|---|
| **DOMAIN / CONTENT STANDARD** | **CT.CC.NBT.3.** | **Number and Operations in Base Ten** |
| **STATE FRAMEWORK** | | **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. |

**Connecticut State Standards**

**Mathematics**

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

| | | |
|---|---|---|
| **DOMAIN / CONTENT STANDARD** | **CT.CC.MP.4.** | **Mathematical Practices** |
| STATE FRAMEWORK | MP.4.1. | Make sense of problems and persevere in solving them. |
| STATE FRAMEWORK | MP.4.2. | Reason abstractly and quantitatively. |
| STATE FRAMEWORK | MP.4.3. | Construct viable arguments and critique the reasoning of others. |
| STATE FRAMEWORK | MP.4.4. | Model with mathematics. |
| STATE FRAMEWORK | MP.4.5. | Use appropriate tools strategically. |
| **DOMAIN / CONTENT STANDARD** | **CT.CC.NBT.4.** | **Number and Operations in Base Ten** |
| **STATE FRAMEWORK** | | **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. |
| **DOMAIN / CONTENT STANDARD** | **CT.CC.MD.4.** | **Measurement and Data** |
| **STATE FRAMEWORK** | | **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. |

**Connecticut State Standards**

**Science**

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

| | | |
|---|---|---|
| **DOMAIN / CONTENT STANDARD** | **NGSS.3-PS.** | **PHYSICAL SCIENCE** |

| | | |
|---|---|---|
| **STATE FRAMEWORK** | **3-PS2.** | **Motion and Stability: Forces and Interactions** |
| **GRADE LEVEL EXPECTATION** | | **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. |
| **DOMAIN / CONTENT STANDARD** | **NGSS.3-5-ETS.** | **ENGINEERING DESIGN** |
| **STATE FRAMEWORK** | **3-5-ETS1.** | **Engineering Design** |
| **GRADE LEVEL EXPECTATION** | | **Students who demonstrate understanding can:** |
| INDICATOR | 3-5-ETS1-1. | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |
| INDICATOR | 3-5-ETS1-2. | Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. |
| INDICATOR | 3-5-ETS1-3. | Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. |

**Connecticut State Standards**

**Science**

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

| | | |
|---|---|---|
| **DOMAIN / CONTENT STANDARD** | **NGSS.4-PS.** | **PHYSICAL SCIENCE** |
| **STATE FRAMEWORK** | **4-PS3.** | **Energy** |
| **GRADE LEVEL EXPECTATION** | | **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. |
| **DOMAIN / CONTENT STANDARD** | **NGSS.4-ESS.** | **EARTH AND SPACE SCIENCE** |
| **STATE FRAMEWORK** | **4-ESS3.** | **Earth and Human Activity** |
| **GRADE LEVEL EXPECTATION** | | **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. |
| **DOMAIN / CONTENT STANDARD** | **NGSS.3-5-ETS.** | **ENGINEERING DESIGN** |
| **STATE FRAMEWORK** | **3-5-ETS1.** | **Engineering Design** |

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

**Connecticut State Standards**

**Technology Education**

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

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

| DOMAIN / CONTENT STANDARD | | CSTA K-12 Computer Science Standards |
|---|---|---|
| STATE FRAMEWORK | CSTA.1B. | Level 1B (Ages 8-11) |
| GRADE LEVEL EXPECTATION | 1B-IC. | Impacts of Computing |
| INDICATOR | | Social Interactions |
| INDICATOR | 1B-IC-20. | Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1) |

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

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

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|---|---|---|
| **DOMAIN / CONTENT STANDARD** | | **ISTE for Students (ISTE-S)** |
| **STATE FRAMEWORK** | **CO.ISTE-S.4.** | **Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** |
| GRADE LEVEL EXPECTATION | ISTE-S.4.a. | Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. |
| GRADE LEVEL EXPECTATION | ISTE-S.4.b. | Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. |

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

**Connecticut State Standards**

**Technology Education**

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

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

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| **DOMAIN / CONTENT STANDARD** | | **CSTA K-12 Computer Science Standards** |
| **STATE FRAMEWORK** | **CSTA.1B.** | **Level 1B (Ages 8-11)** |

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|---|---|---|
| **GRADE LEVEL EXPECTATION** | **1B-IC.** | **Impacts of Computing** |
| **INDICATOR** | | **Social Interactions** |
| INDICATOR | 1B-IC-20. | Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1) |

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

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|---|---|---|
| **DOMAIN / CONTENT STANDARD** | | **ISTE for Students (ISTE-S)** |
| **STATE FRAMEWORK** | **CO.ISTE-S.3.** | **Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.** |
| GRADE LEVEL EXPECTATION | ISTE-S.3.d. | Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. |
| **DOMAIN / CONTENT STANDARD** | | **ISTE for Students (ISTE-S)** |
| **STATE FRAMEWORK** | **CO.ISTE-S.4.** | **Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** |
| GRADE LEVEL EXPECTATION | ISTE-S.4.a. | Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. |
| GRADE LEVEL EXPECTATION | ISTE-S.4.b. | Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. |
| **DOMAIN / CONTENT STANDARD** | | **ISTE for Students (ISTE-S)** |
| **STATE FRAMEWORK** | **CO.ISTE-S.5.** | **Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.** |
| GRADE LEVEL EXPECTATION | ISTE-S.5.a. | Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions. |
| GRADE LEVEL EXPECTATION | ISTE-S.5.b. | Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. |
| GRADE LEVEL EXPECTATION | ISTE-S.5.d. | Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. |

**Delaware Standards and Instruction**

**Mathematics**

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

| | | |
|---|---|---|
| **STANDARD / STRAND** | **DE.CC.3.MP.** | **Mathematical Practices** |
| STRAND / INDICATOR | CC.3.MP.1. | Make sense of problems and persevere in solving them. |
| STRAND / INDICATOR | CC.3.MP.2. | Reason abstractly and quantitatively. |

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| STRAND / INDICATOR | CC.3.MP.3. | Construct viable arguments and critique the reasoning of others. |
| STRAND / INDICATOR | CC.3.MP.4. | Model with mathematics. |
| STRAND / INDICATOR | CC.3.MP.5. | Use appropriate tools strategically. |
| **STANDARD / STRAND** | **DE.CC.3.NBT.** | **Number and Operations in Base Ten** |
| **STRAND / INDICATOR** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| ENDURING UNDERSTANDING | 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. |

**Delaware Standards and Instruction**

**Mathematics**

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

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|---|---|---|
| **STANDARD / STRAND** | **DE.CC.4.MP.** | **Mathematical Practices** |
| STRAND / INDICATOR | CC.4.MP.1. | Make sense of problems and persevere in solving them. |
| STRAND / INDICATOR | CC.4.MP.2. | Reason abstractly and quantitatively. |
| STRAND / INDICATOR | CC.4.MP.3. | Construct viable arguments and critique the reasoning of others. |
| STRAND / INDICATOR | CC.4.MP.4. | Model with mathematics. |
| STRAND / INDICATOR | CC.4.MP.5. | Use appropriate tools strategically. |
| **STANDARD / STRAND** | **DE.CC.4.NBT.** | **Number and Operations in Base Ten** |
| **STRAND / INDICATOR** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| ENDURING UNDERSTANDING | CC.4.NBT.4. | Fluently add and subtract multi-digit whole numbers using the standard algorithm. |
| **STANDARD / STRAND** | **DE.CC.4.MD.** | **Measurement and Data** |
| **STRAND / INDICATOR** | | **Represent and interpret data.** |

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| ENDURING UNDERSTANDING | 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. |

**Delaware Standards and Instruction**

**Science**

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

| | | |
|---|---|---|
| **STANDARD / STRAND** | **DE.3-PS.** | **PHYSICAL SCIENCE** |
| **STRAND / INDICATOR** | **3-PS2.** | **Motion and Stability: Forces and Interactions** |
| **ENDURING UNDERSTANDING** | | **Students who demonstrate understanding can:** |
| BENCHMARK | 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. |

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

**Delaware Standards and Instruction**

**Science**

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

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

| | | |
|---|---|---|
| **STANDARD / STRAND** | **DE.4-ESS.** | **EARTH AND SPACE SCIENCE** |
| **STRAND / INDICATOR** | **4-ESS3.** | **Earth and Human Activity** |
| **ENDURING UNDERSTANDING** | | **Students who demonstrate understanding can:** |

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



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

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

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

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

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

**Florida Standards**

**Mathematics**

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

| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
|---|---|---|
| **BIG IDEA** | | **Standard 1: Actively participate in effortful learning both individually and collectively.** |
| **BENCHMARK** | **MA.K12. MTR.1.1** | **Mathematicians who participate in effortful learning both individually and with others:** |
| INDICATOR | MA.K12. MTR.1.1a | Analyze the problem in a way that makes sense given the task. |
| INDICATOR | MA.K12. MTR.1.1b | Ask questions that will help with solving the task. |
| INDICATOR | MA.K12. MTR.1.1c | Build perseverance by modifying methods as needed while solving a challenging task. |
| INDICATOR | MA.K12. MTR.1.1d | Stay engaged and maintain a positive mindset when working to solve tasks. |

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|---|---|---|
| INDICATOR | MA.K12.MTR.1.1e | Help and support each other when attempting a new method or approach. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 2: Demonstrate understanding by representing problems in multiple ways.** |
| **BENCHMARK** | **MA.K12.MTR.2.1** | **Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:** |
| INDICATOR | MA.K12.MTR.2.1a | Build understanding through modeling and using manipulatives. |
| INDICATOR | MA.K12.MTR.2.1b | Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations. |
| INDICATOR | MA.K12.MTR.2.1e | Choose a representation based on the given context or purpose. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 3: Complete tasks with mathematical fluency.** |
| **BENCHMARK** | **MA.K12.MTR.3.1** | **Complete tasks with mathematical fluency.Mathematicians who complete tasks with mathematical fluency:** |
| INDICATOR | MA.K12.MTR.3.1a | Select efficient and appropriate methods for solving problems within the given context. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 4: Engage in discussions that reflect on the mathematical thinking of self and others.** |
| **BENCHMARK** | **MA.K12.MTR.4.1** | **Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:** |
| INDICATOR | MA.K12.MTR.4.1a | Communicate mathematical ideas, vocabulary and methods effectively. |
| INDICATOR | MA.K12.MTR.4.1b | Analyze the mathematical thinking of others. |
| INDICATOR | MA.K12.MTR.4.1c | Compare the efficiency of a method to those expressed by others. |
| INDICATOR | MA.K12.MTR.4.1e | Justify results by explaining methods and processes. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 5: Use patterns and structure to help understand and connect mathematical concepts.** |
| **BENCHMARK** | **MA.K12.MTR.5.1** | **Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts:** |

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|---|---|---|
| INDICATOR | MA.K12.MTR.5.1a | Focus on relevant details within a problem. |
| INDICATOR | MA.K12.MTR.5.1c | Decompose a complex problem into manageable parts. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 7: Apply mathematics to real-world contexts.** |
| **BENCHMARK** | **MA.K12.MTR.7.1** | **Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:** |
| INDICATOR | MA.K12.MTR.7.1a | Connect mathematical concepts to everyday experiences. |
| INDICATOR | MA.K12.MTR.7.1b | Use models and methods to understand, represent and solve problems. |
| INDICATOR | MA.K12.MTR.7.1c | Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency. |
| **BODY OF KNOWLEDGE** | | **Number Sense and Operations** |
| **BIG IDEA** | | **Standard 2: Add and subtract multi-digit whole numbers. Build an understanding of multiplication and division operations.** |
| BENCHMARK | MA.3.NSO.2.1. | Add and subtract multi-digit whole numbers including using a standard algorithm with procedural fluency. |
| **BODY OF KNOWLEDGE** | | **Data Analysis and Probability** |
| **BIG IDEA** | | **Standard 1: Collect, represent and interpret numerical and categorical data.** |
| BENCHMARK | MA.3.DP.1.1. | Collect and represent numerical and categorical data with whole-number values using tables, scaled pictographs, scaled bar graphs or line plots. Use appropriate titles, labels and units. |

**Florida Standards**
**Mathematics**
Grade **4** - Adopted: **2020**

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|---|---|---|
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 1: Actively participate in effortful learning both individually and collectively.** |
| **BENCHMARK** | **MA.K12.MTR.1.1** | **Mathematicians who participate in effortful learning both individually and with others:** |
| INDICATOR | MA.K12.MTR.1.1a | Analyze the problem in a way that makes sense given the task. |
| INDICATOR | MA.K12.MTR.1.1b | Ask questions that will help with solving the task. |

| | | |
|---|---|---|
| INDICATOR | MA.K12.MTR.1.1c | Build perseverance by modifying methods as needed while solving a challenging task. |
| INDICATOR | MA.K12.MTR.1.1d | Stay engaged and maintain a positive mindset when working to solve tasks. |
| INDICATOR | MA.K12.MTR.1.1e | Help and support each other when attempting a new method or approach. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 2: Demonstrate understanding by representing problems in multiple ways.** |
| **BENCHMARK** | **MA.K12.MTR.2.1** | **Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:** |
| INDICATOR | MA.K12.MTR.2.1a | Build understanding through modeling and using manipulatives. |
| INDICATOR | MA.K12.MTR.2.1b | Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations. |
| INDICATOR | MA.K12.MTR.2.1e | Choose a representation based on the given context or purpose. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 3: Complete tasks with mathematical fluency.** |
| **BENCHMARK** | **MA.K12.MTR.3.1** | **Complete tasks with mathematical fluency.Mathematicians who complete tasks with mathematical fluency:** |
| INDICATOR | MA.K12.MTR.3.1a | Select efficient and appropriate methods for solving problems within the given context. |
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 4: Engage in discussions that reflect on the mathematical thinking of self and others.** |
| **BENCHMARK** | **MA.K12.MTR.4.1** | **Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:** |
| INDICATOR | MA.K12.MTR.4.1a | Communicate mathematical ideas, vocabulary and methods effectively. |
| INDICATOR | MA.K12.MTR.4.1b | Analyze the mathematical thinking of others. |
| INDICATOR | MA.K12.MTR.4.1c | Compare the efficiency of a method to those expressed by others. |
| INDICATOR | MA.K12.MTR.4.1e | Justify results by explaining methods and processes. |

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

| | | |
|---|---|---|
| **BODY OF KNOWLEDGE** | | **Mathematical Thinking and Reasoning** |
| **BIG IDEA** | | **Standard 7: Apply mathematics to real-world contexts.** |
| **BENCHMARK** | **MA.K12.MTR.7.1** | **Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:** |
| INDICATOR | MA.K12.MTR.7.1a | Connect mathematical concepts to everyday experiences. |
| INDICATOR | MA.K12.MTR.7.1b | Use models and methods to understand, represent and solve problems. |
| INDICATOR | MA.K12.MTR.7.1c | Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency. |

| | | |
|---|---|---|
| **BODY OF KNOWLEDGE** | | **Data Analysis and Probability** |
| **BIG IDEA** | | **Standard 1: Collect, represent and interpret data and find the mode, median and range of a data set.** |
| BENCHMARK | MA.4.DP.1.1. | Collect and represent numerical data, including fractional values, using tables, stem-and-leaf plots or line plots. |

**Florida Standards**

**Science**

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

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|---|---|---|
| **BODY OF KNOWLEDGE** | **FL.SC.3.N.** | **Nature of Science** |
| **BIG IDEA** | **SC.3.N.1.** | **The Practice of Science - A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation. B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method." C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge. D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.** |
| BENCHMARK | SC.3.N.1.1. | Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations. |

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| **BODY OF KNOWLEDGE** | **FL.SC.3.N.** | **Nature of Science** |

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| **BIG IDEA** | **SC.3.N.3.** | **The Role of Theories, Laws, Hypotheses, and Models - The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science.** |
| BENCHMARK | SC.3.N.3.1. | Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence. |
| **BODY OF KNOWLEDGE** | **FL.SC.3.P.** | **Physical Science** |
| **BIG IDEA** | **SC.3.P.10.** | **Forms of Energy - A. Energy is involved in all physical processes and is a unifying concept in many areas of science. B. Energy exists in many forms and has the ability to do work or cause a change.** |
| BENCHMARK | SC.3.P.10.1. | Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. |
| BENCHMARK | SC.3.P.10.2. | Recognize that energy has the ability to cause motion or create change. |

**Florida Standards**

**Science**

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

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| **BODY OF KNOWLEDGE** | **FL.SC.4.N.** | **Nature of Science** |
| **BIG IDEA** | **SC.4.N.1.** | **The Practice of Science - A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation. B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method." C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge. D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.** |
| BENCHMARK | SC.4.N.1.1. | Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations. |
| BENCHMARK | SC.4.N.1.4. | Attempt reasonable answers to scientific questions and cite evidence in support. |
| **BODY OF KNOWLEDGE** | **FL.SC.4.E.** | **Earth and Space Science** |
| **BIG IDEA** | **SC.4.E.6.** | **Earth Structures - Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.** |
| BENCHMARK | SC.4.E.6.3. | Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable. |
| **BODY OF KNOWLEDGE** | **FL.SC.4.P.** | **Physical Science** |
| **BIG IDEA** | **SC.4.P.10.** | **Forms of Energy - A. Energy is involved in all physical processes and is a unifying concept in many areas of science. B. Energy exists in many forms and has the ability to do work or cause a change.** |
| BENCHMARK | SC.4.P.10.1. | Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion. |

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| BENCHMARK | SC.4.P.10.2. | Investigate and describe that energy has the ability to cause motion or create change. |
| BENCHMARK | SC.4.P.10.4. | Describe how moving water and air are sources of energy and can be used to move things. |

**Florida Standards**
**Technology Education**
Grade **3** - Adopted: **2016**

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| **BODY OF KNOWLEDGE** | **FL.SC.35.CS-CS.** | **COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING** |
| **BIG IDEA** | **SC.35.CS-CS.1.** | **Modeling and simulations** |
| BENCHMARK | SC.35.CS-CS.1.3 | Answer a question, individually and collaboratively, using data from a simulation. |
| **BODY OF KNOWLEDGE** | **FL.SC.35.CS-CS.** | **COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING** |
| **BIG IDEA** | **SC.35.CS-CS.2.** | **Problem solving and Algorithms** |
| BENCHMARK | SC.35.CS-CS.2.2 | Describe how computational thinking can be used to solve real life issues in science and engineering. |
| BENCHMARK | SC.35.CS-CS.2.4 | Solve real-world problems in science and engineering using computational thinking skills. |
| BENCHMARK | SC.35.CS-CS.2.6 | Write an algorithm to solve a grade-level appropriate problem (e.g., move a character through a maze, instruct a character to draw a specific shape, have a character start, repeat or end activity as required or upon a specific event), individually or collaboratively. |
| **BODY OF KNOWLEDGE** | **FL.SC.35.CS-CP.** | **COMPUTER SCIENCE - COMPUTER PRACTICES AND PROGRAMMING** |
| **BIG IDEA** | **SC.35.CS-CP.2.** | **Computer programming basics** |
| BENCHMARK | SC.35.CS-CP.2.2 | Create, test, and modify a program in a graphical environment (e.g., block-based visual programming language), individually and collaboratively. |

**Florida Standards**
**Technology Education**
Grade **4** - Adopted: **2016**

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|---|---|---|
| **BODY OF KNOWLEDGE** | **FL.SC.35.CS-CS.** | **COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING** |
| **BIG IDEA** | **SC.35.CS-CS.1.** | **Modeling and simulations** |
| BENCHMARK | SC.35.CS-CS.1.3 | Answer a question, individually and collaboratively, using data from a simulation. |
| **BODY OF KNOWLEDGE** | **FL.SC.35.CS-CS.** | **COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING** |

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

**Georgia Standards of Excellence**

**Mathematics**

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

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| **STRAND/TOPIC** | | **3rd Grade** |
| **STANDARD / DESCRIPTION** | | **PATTERNING & ALGEBRAIC REASONING – fluency, addition and subtraction within 10,000, multiplication and division within 100, equality, properties of operations** |
| **ELEMENT** | **3.PAR.2:** | **Use part-whole strategies to represent and solve real-life problems involving addition and subtraction with whole numbers within 10,000.** |
| ELEMENT/GLE | 3.PAR.2.1. | Fluently add and subtract within 1000 to solve problems. |
| ELEMENT/GLE | 3.PAR.2.2. | Apply part-whole strategies, properties of operations and place value understanding, to solve problems involving addition and subtraction within 10,000. Represent these problems using equations with a letter standing for the unknown quantity. Justify solutions. |

**Georgia Standards of Excellence**

**Mathematics**

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

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| **STRAND/TOPIC** | | **4th Grade** |
| **STANDARD / DESCRIPTION** | | **NUMERICAL REASONING – place value, rounding, comparisons with multi-digit numbers, addition and subtraction, multiplicative comparisons, multiplication, and division involving whole numbers** |
| **ELEMENT** | **4.NR.2:** | **Using part-whole strategies, solve problems involving addition and subtraction through the hundred-thousands place, as well as multiplication and division of multi-digit whole numbers presented in real-life, mathematical situations.** |
| ELEMENT/GLE | 4.NR.2.1. | Fluently add and subtract multi-digit numbers to solve practical, mathematical problems using place value understanding, properties of operations, and relationships between operations. |

**Georgia Standards of Excellence**

**Science**

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

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| **STRAND/TOPIC** | | **Physical Science** |

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| **STANDARD / DESCRIPTION** | **S4P3.** | **Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.** |
| ELEMENT | S4P3.c. | Ask questions to identify and explain the uses of simple machines (lever, pulley, wedge, inclined plane, wheel and axle, and screw) and how forces are changed when simple machines are used to complete tasks. |

**Georgia Standards of Excellence**

**Technology Education**

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

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| **STRAND/TOPIC** | | **Computer Science Third Grade (11.07600)** |
| **STANDARD / DESCRIPTION** | | **Knowledge Constructor** |
| **ELEMENT** | **CSS.KC. 3-5.2.** | **Curate (analyze and evaluate) a variety of resources and digital tools to construct knowledge and produce creative artifacts.** |
| ELEMENT/GLE | CSS.KC. 3-5.2.3. | Explain why a real-world issue exists or was created and develop a possible solution. |

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| **STRAND/TOPIC** | | **Computer Science Third Grade (11.07600)** |
| **STANDARD / DESCRIPTION** | | **Global Collaborator** |
| **ELEMENT** | **CSS.GC .3-5.7.** | **Use digital tools to expand personal viewpoints and enrich learning by collaborating effectively both locally and globally.** |
| ELEMENT/GLE | CSS.GC. 3-5.7.2. | Plan the development of a program by including others' viewpoints and considering user preferences. |

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| **STRAND/TOPIC** | | **Computer Science Third Grade (11.07600)** |
| **STANDARD / DESCRIPTION** | | **Reflective Researcher** |
| **ELEMENT** | **CSS.RR. 3-5.8.** | **Gather, evaluate, and organize quality information from multiple sources.** |
| ELEMENT/GLE | CSS.RR. 3-5.8.3. | Use information from multiple sources to identify real-world issues and create solutions. |

**Georgia Standards of Excellence**

**Technology Education**

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

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|---|---|---|
| **STRAND/TOPIC** | | **Computer Science Fourth Grade (11.07700)** |
| **STANDARD / DESCRIPTION** | | **Knowledge Constructor** |
| **ELEMENT** | **CSS.KC. 3-5.2.** | **Curate (analyze and evaluate) a variety of resources and digital tools to construct knowledge and produce creative artifacts.** |
| ELEMENT/GLE | CSS.KC. 3-5.2.3. | Explain why a real-world issue exists or was created and develop a possible solution. |

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| **STRAND/TOPIC** | | **Computer Science Fourth Grade (11.07700)** |
| **STANDARD / DESCRIPTION** | | **Global Collaborator** |
| **ELEMENT** | **CSS.GC .3-5.7.** | **Use digital tools to expand personal viewpoints and enrich learning by collaborating effectively both locally and globally.** |

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

| **STRAND/TOPIC** | | **Computer Science Fourth Grade (11.07700)** |
|---|---|---|
| **STANDARD / DESCRIPTION** | | **Reflective Researcher** |
| **ELEMENT** | **CSS.RR.3-5.8.** | **Gather, evaluate, and organize quality information from multiple sources.** |
| ELEMENT/GLE | CSS.RR.3-5.8.3. | Use information from multiple sources to identify real-world issues and create solutions. |

**Hawaii Content and Performance Standards**

**Mathematics**

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

| **CONTENT STANDARD / COURSE** | **HI.CC.MP.3.** | **Mathematical Practices** |
|---|---|---|
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.3.1. | Make sense of problems and persevere in solving them. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.3.2. | Reason abstractly and quantitatively. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.3.3. | Construct viable arguments and critique the reasoning of others. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.3.4. | Model with mathematics. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.3.5. | Use appropriate tools strategically. |

| **CONTENT STANDARD / COURSE** | **HI.CC.NBT.3.** | **Number and Operations in Base Ten** |
|---|---|---|
| **STANDARD / PERFORMANCE INDICATOR / DOMAIN** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK | 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. |

Hawaii Content and Performance Standards

Mathematics

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

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|---|---|---|
| **CONTENT STANDARD / COURSE** | **HI.CC.MP.4.** | **Mathematical Practices** |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.4.1. | Make sense of problems and persevere in solving them. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.4.2. | Reason abstractly and quantitatively. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.4.3. | Construct viable arguments and critique the reasoning of others. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.4.4. | Model with mathematics. |
| STANDARD / PERFORMANCE INDICATOR / DOMAIN | MP.4.5. | Use appropriate tools strategically. |
| **CONTENT STANDARD / COURSE** | **HI.CC.NBT.4.** | **Number and Operations in Base Ten** |
| **STANDARD / PERFORMANCE INDICATOR / DOMAIN** | | **Use place value understanding and properties of operations to perform multi-digit arithmetic.** |
| INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK | NBT.4.4. | Fluently add and subtract multi-digit whole numbers using the standard algorithm. |
| **CONTENT STANDARD / COURSE** | **HI.CC.MD.4.** | **Measurement and Data** |
| **STANDARD / PERFORMANCE INDICATOR / DOMAIN** | | **Represent and interpret data.** |
| INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK | 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. |

Hawaii Content and Performance Standards

Science

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

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|---|---|---|
| **CONTENT STANDARD / COURSE** | **NGSS.3-PS.** | **PHYSICAL SCIENCE** |
| **STANDARD / PERFORMANCE INDICATOR / DOMAIN** | **3-PS2.** | **Motion and Stability: Forces and Interactions** |
| **INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK** | | **Students who demonstrate understanding can:** |
| EXPECTATION / TOPIC | 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. |

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

**Hawaii Content and Performance Standards**

**Science**

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

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

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| **CONTENT STANDARD / COURSE** | **NGSS.4-ESS.** | **EARTH AND SPACE SCIENCE** |

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|---|---|---|
| **STANDARD / PERFORMANCE INDICATOR / DOMAIN** | **4-ESS3.** | **Earth and Human Activity** |
| **INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK** | | **Students who demonstrate understanding can:** |
| EXPECTATION / TOPIC | 4-ESS3-1. | Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. |

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