**Main Criteria:** Forward Education

**Secondary Criteria:** Pennsylvania Core and Academic Standards, Rhode Island World-Class Standards, South Carolina Standards & Learning, South Dakota Content Standards, Tennessee Academic Standards, Texas Essential Knowledge and Skills (TEKS), Utah Core Standards, Vermont Content Standards, Virginia Standards of Learning, Washington State K-12 Learning Standards and Guidelines, Washington DC Academic Standards, West Virginia College and Career Readiness Standards, Wisconsin Academic Standards, Wyoming Content and Performance Standards

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

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

# Forward Education

Protecting Pollinators with a Bee Counter

**Pennsylvania Core and Academic Standards**

**Mathematics**

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

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

**Pennsylvania Core and Academic Standards**

**Mathematics**

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

| SUBJECT / STANDARD AREA | PA.CC.MP. | Standards for Mathematical Practice |
|---|---|---|
| STANDARD AREA / STATEMENT | CC.MP.1. | Make sense of problems and persevere in solving them. |
| STANDARD AREA / STATEMENT | CC.MP.2. | Reason abstractly and quantitatively. |
| STANDARD AREA / STATEMENT | CC.MP.3. | Construct viable arguments and critique the reasoning of others. |

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| STANDARD AREA / STATEMENT | CC.MP.4. | Model with mathematics. |
| STANDARD AREA / STATEMENT | CC.MP.5. | Use appropriate tools strategically. |

**Pennsylvania Core and Academic Standards**

**Science**

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

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|---|---|---|
| **SUBJECT / STANDARD AREA** | **PA.SI.** | **Science as Inquiry** |
| STANDARD AREA / STATEMENT | SI.5. | Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. |
| STANDARD AREA / STATEMENT | SI.7. | Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists. |

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| **SUBJECT / STANDARD AREA** | **PA.3.1.** | **Biological Sciences** |
| **STANDARD AREA / STATEMENT** | **3.1.A.** | **Organisms and Cells** |
| **STANDARD** | | **Form and Function** |
| DESCRIPTOR / STANDARD | 3.1.3.A5. | Identify the structures in plants that are responsible for food production, support, water transport, reproduction, growth, and protection. |

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| **SUBJECT / STANDARD AREA** | **PA.3.4.** | **Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.B.** | **Technology and Society** |
| **STANDARD** | | **Technology and History** |
| DESCRIPTOR / STANDARD | 3.4.3.B4. | Illustrate how people have made tools to provide food, clothing, and shelter. |

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| **SUBJECT / STANDARD AREA** | **PA.3.4.** | **Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.C.** | **Technology and Engineering Design** |
| **STANDARD** | | **Design Attributes** |
| DESCRIPTOR / STANDARD | 3.4.3.C1. | Recognize design is a creative process and everyone can design solutions to problems. |

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| **SUBJECT / STANDARD AREA** | **PA.3.4.** | **Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.C.** | **Technology and Engineering Design** |
| **STANDARD** | | **Engineering Design** |
| DESCRIPTOR / STANDARD | 3.4.3.C2. | Explain why the design process requires creativity and consideration of all ideas. |

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| **SUBJECT / STANDARD AREA** | **PA.3.4.** | **Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.E.** | **The Designed World** |
| **STANDARD** | | **Medical Technologies** |
| DESCRIPTOR / STANDARD | 3.4.3.E1. | Identify the technologies that support and improve quality of life. |

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| **SUBJECT / STANDARD AREA** | **PA.3.4.** | **Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.E.** | **The Designed World** |
| **STANDARD** | | **Agricultural and Related Biotechnologies** |
| DESCRIPTOR / STANDARD | 3.4.3.E2. | Identify some processes used in agriculture that require different procedures, products, or systems. |

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| **SUBJECT / STANDARD AREA** | **PA.3.4.** | **Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.E.** | **The Designed World** |
| **STANDARD** | | **Energy and Power Technologies** |
| DESCRIPTOR / STANDARD | 3.4.3.E3. | Recognize that tools, machines, products, and systems use energy in order to do work. |

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| **SUBJECT / STANDARD AREA** | | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | | **Science as Inquiry: Grades PreK - 3** |
| STANDARD | SI.4.PK-3 | Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. |

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| STANDARD | SI.6.PK-3 | Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced and review and ask questions about the work of other scientists. |
| **SUBJECT / STANDARD AREA** | | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | **4.1.** | **Ecology** |
| STANDARD | 4.1.3.D | Identify organisms that are dependent on one another in a given ecosystem. Define habitat and explain how a change in habitat affects an organism. |
| **SUBJECT / STANDARD AREA** | | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | **4.4.** | **Agriculture and Society** |
| STANDARD | 4.4.3.A | Identify Pennsylvania crops that provide food for the table and fiber for textiles. |
| STANDARD | 4.4.3.B | Explain how agriculture meets the basic needs of humans. |
| **SUBJECT / STANDARD AREA** | | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | **4.5.** | **Humans and the Environment** |
| STANDARD | 4.5.3.A | Identify resources humans take from the environment for their survival. |

**Pennsylvania Core and Academic Standards**

**Science**

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

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| **SUBJECT / STANDARD AREA** | **PA.SI.** | **Science as Inquiry** |
| STANDARD AREA / STATEMENT | SI.5. | Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. |
| STANDARD AREA / STATEMENT | SI.7. | Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists. |
| **SUBJECT / STANDARD AREA** | **PA.3.** | **Science and Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.** | **Technology and Engineering Education** |
| **STANDARD** | **3.4.A.** | **The Scope of Technology** |

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| DESCRIPTOR / STANDARD | 3.4.4.A1. | Understand that tools, materials, and skills are used to make things and carry out tasks. |
| DESCRIPTOR / STANDARD | 3.4.4.A2. | Understand that systems have parts and components that work together. |
| DESCRIPTOR / STANDARD | 3.4.4.A3. | Describe how various relationships exist between technology and other fields. |
| **SUBJECT / STANDARD AREA** | **PA.3.** | **Science and Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.** | **Technology and Engineering Education** |
| **STANDARD** | **3.4.B.** | **Technology and Society** |
| DESCRIPTOR / STANDARD | 3.4.4.B1. | Describe how technology affects humans in various ways. |
| **SUBJECT / STANDARD AREA** | **PA.3.** | **Science and Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.** | **Technology and Engineering Education** |
| **STANDARD** | **3.4.C.** | **Technology and Engineering Design** |
| **DESCRIPTOR / STANDARD** | **3.4.4.C2.** | **Describe the engineering design process:** |
| DESCRIPTOR | 3.4.4.C2.2. | Generate ideas. |
| DESCRIPTOR | 3.4.4.C2.3. | Select a solution and test it. |
| DESCRIPTOR | 3.4.4.C2.4. | Make the item. |
| DESCRIPTOR | 3.4.4.C2.5. | Evaluate the item. |
| DESCRIPTOR | 3.4.4.C2.6 | Communicate the solution with others. |
| DESCRIPTOR | 3.4.4.C2.7. | Present the results. |
| **SUBJECT / STANDARD AREA** | **PA.3.** | **Science and Technology and Engineering Education** |
| **STANDARD AREA / STATEMENT** | **3.4.** | **Technology and Engineering Education** |

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| **STANDARD** | **3.4.D.** | **Abilities for a Technological World** |
| DESCRIPTOR / STANDARD | 3.4.4.D1. | Investigate how things are made and how they can be improved. |
| DESCRIPTOR / STANDARD | 3.4.4.D2b. | Identify and use simple hand tools (e.g., hammer, scale) correctly and safely. |
| DESCRIPTOR / STANDARD | 3.4.4.D3. | Investigate and assess the influence of a specific technology or system on the individual, family, community, and environment. |
| **SUBJECT / STANDARD AREA** | **PA.4.** | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | **4.1.** | **Ecology** |
| **STANDARD** | **4.1.4.A.** | **Explain how living things are dependent upon other living and nonliving things for survival.** |
| DESCRIPTOR / STANDARD | 4.1.4.A.1. | Explain what happens to an organism when its food supply, access to water, shelter or space (niche /habitat) is changed. |
| **SUBJECT / STANDARD AREA** | **PA.4.** | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | **4.5.** | **Humans and the Environment** |
| STANDARD | 4.5.4.A. | Identify how people use natural resources in sustainable and non-sustainable ways. |
| STANDARD | 4.5.4.C. | Describe how human activities affect the environment. |
| **SUBJECT / STANDARD AREA** | **PA.4.** | **Environment and Ecology** |
| **STANDARD AREA / STATEMENT** | **4.5.** | **Humans and the Environment** |
| **STANDARD** | **4.5.4.D.** | **Describe a waste stream.** |
| DESCRIPTOR / STANDARD | 4.5.4.D.3. | Describe how everyday activities may affect the environment. |

**Pennsylvania Core and Academic Standards**

**Technology Education**

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

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|---|---|---|
| **SUBJECT / STANDARD AREA** | **CSTA.1B.** | **Level 1B (Ages 8-11)** |
| **STANDARD AREA / STATEMENT** | **1B-AP.** | **Algorithms & Programming** |
| **STANDARD** | | **Program Development** |

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|---|---|---|
| DESCRIPTOR / STANDARD | 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) |
| DESCRIPTOR / STANDARD | 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) |
| DESCRIPTOR / STANDARD | 1B-AP-17. | Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2) |
| **SUBJECT / STANDARD AREA** | **CSTA.1B.** | **Level 1B (Ages 8-11)** |
| **STANDARD AREA / STATEMENT** | **1B-IC.** | **Impacts of Computing** |
| **STANDARD** | | **Social Interactions** |
| DESCRIPTOR / STANDARD | 1B-IC-20. | Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1) |

**Pennsylvania Core and Academic Standards**

**Technology Education**

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

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|---|---|---|
| **SUBJECT / STANDARD AREA** | **CSTA.1B.** | **Level 1B (Ages 8-11)** |
| **STANDARD AREA / STATEMENT** | **1B-AP.** | **Algorithms & Programming** |
| **STANDARD** | | **Program Development** |
| DESCRIPTOR / STANDARD | 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) |
| DESCRIPTOR / STANDARD | 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) |
| DESCRIPTOR / STANDARD | 1B-AP-17. | Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2) |
| **SUBJECT / STANDARD AREA** | **CSTA.1B.** | **Level 1B (Ages 8-11)** |
| **STANDARD AREA / STATEMENT** | **1B-IC.** | **Impacts of Computing** |
| **STANDARD** | | **Social Interactions** |
| DESCRIPTOR / STANDARD | 1B-IC-20. | Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1) |

**Rhode Island World-Class Standards**

**Mathematics**

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

| DOMAIN | | The Standards for Mathematical Practice |
|---|---|---|
| STATEMENT OF ENDURING KNOWLEDGE | MP1 | Make sense of problems and persevere in solving them. |
| STATEMENT OF ENDURING KNOWLEDGE | MP2 | Reason abstractly and quantitatively. |
| STATEMENT OF ENDURING KNOWLEDGE | MP3 | Construct viable arguments and critique the reasoning of others. |
| STATEMENT OF ENDURING KNOWLEDGE | MP4 | Model with mathematics. |
| STATEMENT OF ENDURING KNOWLEDGE | MP5 | Use appropriate tools strategically. |

**Rhode Island World-Class Standards**

**Mathematics**

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

| DOMAIN | | The Standards for Mathematical Practice |
|---|---|---|
| STATEMENT OF ENDURING KNOWLEDGE | MP1 | Make sense of problems and persevere in solving them. |
| STATEMENT OF ENDURING KNOWLEDGE | MP2 | Reason abstractly and quantitatively. |
| STATEMENT OF ENDURING KNOWLEDGE | MP3 | Construct viable arguments and critique the reasoning of others. |
| STATEMENT OF ENDURING KNOWLEDGE | MP4 | Model with mathematics. |
| STATEMENT OF ENDURING KNOWLEDGE | MP5 | Use appropriate tools strategically. |

**Rhode Island World-Class Standards**

**Science**

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

| DOMAIN | NGSS.3-LS. | LIFE SCIENCE |
|---|---|---|

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|---|---|---|
| **STATEMENT OF ENDURING KNOWLEDGE** | **3-LS4.** | **Biological Evolution: Unity and Diversity** |
| **GSE STEM** | | **Students who demonstrate understanding can:** |
| SPECIFIC INDICATOR | 3-LS4-4. | Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. |

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| **DOMAIN** | **NGSS.3-5-ETS.** | **ENGINEERING DESIGN** |
| **STATEMENT OF ENDURING KNOWLEDGE** | **3-5-ETS1.** | **Engineering Design** |
| **GSE STEM** | | **Students who demonstrate understanding can:** |
| SPECIFIC 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. |
| SPECIFIC 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. |
| SPECIFIC 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. |

**Rhode Island World-Class Standards**

**Science**

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

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| **DOMAIN** | **NGSS.4-LS.** | **LIFE SCIENCE** |
| **STATEMENT OF ENDURING KNOWLEDGE** | **4-LS1.** | **From Molecules to Organisms: Structures and Processes** |
| **GSE STEM** | | **Students who demonstrate understanding can:** |
| SPECIFIC INDICATOR | 4-LS1-1. | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. |

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| **DOMAIN** | **NGSS.3-5-ETS.** | **ENGINEERING DESIGN** |
| **STATEMENT OF ENDURING KNOWLEDGE** | **3-5-ETS1.** | **Engineering Design** |
| **GSE STEM** | | **Students who demonstrate understanding can:** |
| SPECIFIC 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. |
| SPECIFIC 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. |
| SPECIFIC 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. |

**Rhode Island World-Class Standards**

**Technology Education**

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

| DOMAIN | | ISTE Standards for Students |
|---|---|---|
| **STATEMENT OF ENDURING KNOWLEDGE** | **RI.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.** |
| GSE STEM | ISTE-S.3.d. | Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. |

| DOMAIN | | ISTE Standards for Students |
|---|---|---|
| **STATEMENT OF ENDURING KNOWLEDGE** | **RI.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.** |
| GSE STEM | ISTE-S.4.a. | Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. |
| GSE STEM | ISTE-S.4.b. | Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. |

| DOMAIN | | ISTE Standards for Students |
|---|---|---|
| **STATEMENT OF ENDURING KNOWLEDGE** | **RI.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.** |
| GSE STEM | 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. |
| GSE STEM | 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. |
| GSE STEM | ISTE-S.5.d. | Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. |

**Rhode Island World-Class Standards**

**Technology Education**

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

| DOMAIN | | ISTE Standards for Students |
|---|---|---|
| **STATEMENT OF ENDURING KNOWLEDGE** | **RI.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.** |
| GSE STEM | ISTE-S.3.d. | Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. |

| DOMAIN | | ISTE Standards for Students |
|---|---|---|
| **STATEMENT OF ENDURING KNOWLEDGE** | **RI.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.** |
| GSE STEM | ISTE-S.4.a. | Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. |

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|---|---|---|
| GSE STEM | ISTE-S.4.b. | Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. |
| **DOMAIN** | | **ISTE Standards for Students** |
| **STATEMENT OF ENDURING KNOWLEDGE** | **RI.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.** |
| GSE STEM | 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. |
| GSE STEM | 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. |
| GSE STEM | ISTE-S.5.d. | Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. |

**South Carolina Standards & Learning**

**Mathematics**

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

| | | |
|---|---|---|
| **STANDARD / COURSE** | **SC.PS.** | **South Carolina College- and Career-Ready Mathematical Process Standards** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.1.** | **Make sense of problems and persevere in solving them.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.1b. | Recognize there may be multiple entry points to a problem and more than one path to a solution. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.1c. | Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.1d. | Evaluate the success of an approach to solve a problem and refine it if necessary. |
| **STANDARD / COURSE** | **SC.PS.** | **South Carolina College- and Career-Ready Mathematical Process Standards** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.2.** | **Reason both contextually and abstractly.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.2b. | Describe a given situation using multiple mathematical representations. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.2c. | Translate among multiple mathematical representations and compare the meanings each representation conveys about the situation. |

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| PERFORMANCE DESCRIPTOR / STANDARD | PS.2d. | Connect the meaning of mathematical operations to the context of a given situation. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.3.** | **Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.3a. | Construct and justify a solution to a problem. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.3b. | Compare and discuss the validity of various reasoning strategies. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.3d. | Reflect on and provide thoughtful responses to the reasoning of others. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.4.** | **Connect mathematical ideas and real-world situations through modeling.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.4a. | Identify relevant quantities and develop a model to describe their relationships. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.4b. | Interpret mathematical models in the context of the situation. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.4d. | Evaluate the reasonableness of a model and refine if necessary. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.5.** | **Use a variety of mathematical tools effectively and strategically.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.5a. | Select and use appropriate tools when solving a mathematical problem. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.5b. | Use technological tools and other external mathematical resources to explore and deepen understanding of concepts. |

**Mathematics**

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

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.1.** | **Make sense of problems and persevere in solving them.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.1b. | Recognize there may be multiple entry points to a problem and more than one path to a solution. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.1c. | Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.1d. | Evaluate the success of an approach to solve a problem and refine it if necessary. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.2.** | **Reason both contextually and abstractly.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.2b. | Describe a given situation using multiple mathematical representations. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.2c. | Translate among multiple mathematical representations and compare the meanings each representation conveys about the situation. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.2d. | Connect the meaning of mathematical operations to the context of a given situation. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.3.** | **Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.3a. | Construct and justify a solution to a problem. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.3b. | Compare and discuss the validity of various reasoning strategies. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.3d. | Reflect on and provide thoughtful responses to the reasoning of others. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.4.** | **Connect mathematical ideas and real-world situations through modeling.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.4a. | Identify relevant quantities and develop a model to describe their relationships. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.4b. | Interpret mathematical models in the context of the situation. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.4d. | Evaluate the reasonableness of a model and refine if necessary. |

| STANDARD / COURSE | SC.PS. | South Carolina College- and Career-Ready Mathematical Process Standards |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **PS.5.** | **Use a variety of mathematical tools effectively and strategically.** |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.5a. | Select and use appropriate tools when solving a mathematical problem. |
| PERFORMANCE DESCRIPTOR / STANDARD | PS.5b. | Use technological tools and other external mathematical resources to explore and deepen understanding of concepts. |

**South Carolina Standards & Learning**

**Science**

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

| STANDARD / COURSE | | Life Science (LS) |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **Biological Evolution: Unity and Diversity (LS4)** |
| PERFORMANCE DESCRIPTOR / STANDARD | 3-LS4-4. | Make a claim about the effectiveness of a solution to a problem caused when the environment changes and affects organisms living there. |

**South Carolina Standards & Learning**

**Science**

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

| STANDARD / COURSE | | Life Science (LS) |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **From Molecules to Organisms: Structures and Processes (LS1)** |

| | | |
|---|---|---|
| PERFORMANCE DESCRIPTOR / STANDARD | 4-LS1-1. | Construct an argument that plants and animals have internal and external structures that function together in a system to support survival, growth, behavior, and reproduction. |

**South Carolina Standards & Learning**

**Technology Education**

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

| **STANDARD / COURSE** | | **Process Standards** |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **A computer science literate student can:** |
| **PERFORMANCE DESCRIPTOR / STANDARD** | **3** | **Recognize, define, and analyze computational problems.** |
| GRADE LEVEL EXAMPLE / STAGE | 3.a. | Recognize when it is appropriate to solve a problem computationally. |
| GRADE LEVEL EXAMPLE / STAGE | 3.b. | Make sense of computational problems and persevere in solving them. |
| GRADE LEVEL EXAMPLE / STAGE | 3.c. | Relate computational problems to prior knowledge. |
| GRADE LEVEL EXAMPLE / STAGE | 3.d. | Recognize that there may be multiple approaches to solving a problem. |
| GRADE LEVEL EXAMPLE / STAGE | 3.e. | Approach problem solving iteratively, using a cyclical process. |

| **STANDARD / COURSE** | | **Process Standards** |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **A computer science literate student can:** |
| **PERFORMANCE DESCRIPTOR / STANDARD** | **4** | **Create, test, and refine computational artifacts.** |
| GRADE LEVEL EXAMPLE / STAGE | 4.b. | Recognize when to use the same solution for multiple problems. |
| GRADE LEVEL EXAMPLE / STAGE | 4.c. | Test computational artifacts systematically by considering multiple scenarios and using test cases. |

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|---|---|---|
| **STANDARD / COURSE** | | **Process Standards** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **A computer science literate student can:** |
| **PERFORMANCE DESCRIPTOR / STANDARD** | **5** | **Communicate about computing.** |
| GRADE LEVEL EXAMPLE / STAGE | 5.a. | Select and use appropriate technological tools to convey solutions to computing problems. |

| | | |
|---|---|---|
| **STANDARD / COURSE** | | **Algorithms and Programming** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **Standard 1.** | **Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms).** |
| PERFORMANCE DESCRIPTOR / STANDARD | 3.AP.1.1. | Describe a daily task as a sequence of steps. |

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| **STANDARD / COURSE** | | **Algorithms and Programming** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **Standard 3.** | **Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks.** |
| PERFORMANCE DESCRIPTOR / STANDARD | 3.AP.3.1. | Identify a simple task (e.g., eating breakfast; brushing your teeth; walking to the bus stop). |
| PERFORMANCE DESCRIPTOR / STANDARD | 3.AP.3.2. | Identify a complex task (e.g., getting ready for school). |

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|---|---|---|
| **STANDARD / COURSE** | | **Algorithms and Programming** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **Standard 4.** | **Develop a program to express an idea or address a problem.** |
| PERFORMANCE DESCRIPTOR / STANDARD | 3.AP.4.1. | Use picture directions to design a series of steps to complete a simple task. |

**South Carolina Standards & Learning**

**Technology Education**

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

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|---|---|---|
| **STANDARD / COURSE** | | **Process Standards** |

| | | |
|---|---|---|
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **A computer science literate student can:** |
| **PERFORMANCE DESCRIPTOR / STANDARD** | **3** | **Recognize, define, and analyze computational problems.** |
| GRADE LEVEL EXAMPLE / STAGE | 3.a. | Recognize when it is appropriate to solve a problem computationally. |
| GRADE LEVEL EXAMPLE / STAGE | 3.b. | Make sense of computational problems and persevere in solving them. |
| GRADE LEVEL EXAMPLE / STAGE | 3.c. | Relate computational problems to prior knowledge. |
| GRADE LEVEL EXAMPLE / STAGE | 3.d. | Recognize that there may be multiple approaches to solving a problem. |
| GRADE LEVEL EXAMPLE / STAGE | 3.e. | Approach problem solving iteratively, using a cyclical process. |
| **STANDARD / COURSE** | | **Process Standards** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **A computer science literate student can:** |
| **PERFORMANCE DESCRIPTOR / STANDARD** | **4** | **Create, test, and refine computational artifacts.** |
| GRADE LEVEL EXAMPLE / STAGE | 4.b. | Recognize when to use the same solution for multiple problems. |
| GRADE LEVEL EXAMPLE / STAGE | 4.c. | Test computational artifacts systematically by considering multiple scenarios and using test cases. |
| **STANDARD / COURSE** | | **Process Standards** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | | **A computer science literate student can:** |
| **PERFORMANCE DESCRIPTOR / STANDARD** | **5** | **Communicate about computing.** |

| | | |
|---|---|---|
| GRADE LEVEL EXAMPLE / STAGE | 5.a. | Select and use appropriate technological tools to convey solutions to computing problems. |

| | | |
|---|---|---|
| **STANDARD / COURSE** | | **Algorithms and Programming** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **Standard 1.** | **Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms).** |
| PERFORMANCE DESCRIPTOR / STANDARD | 4.AP.1.1. | Use step-by-step instructions to perform tasks (i.e., sequential execution). |

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|---|---|---|
| **STANDARD / COURSE** | | **Algorithms and Programming** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **Standard 3.** | **Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks.** |
| PERFORMANCE DESCRIPTOR / STANDARD | 4.AP.3.1. | Compose simple tasks (e.g., eating breakfast; brushing your teeth; walking to the bus stop) into a complex task (e.g., getting ready for school). |

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|---|---|---|
| **STANDARD / COURSE** | | **Algorithms and Programming** |
| **KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION** | **Standard 4.** | **Develop a program to express an idea or address a problem.** |
| PERFORMANCE DESCRIPTOR / STANDARD | 4.AP.4.1. | Use picture directions to design a series of steps to complete a complex task. |

**South Dakota Content Standards**

**Mathematics**

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

| | | |
|---|---|---|
| **GOAL/STRAND** | | **Standards for Mathematical Practice** |
| INDICATOR/BENCHMARK | 1 | Make sense of problems and persevere in solving them. |
| INDICATOR/BENCHMARK | 2 | Reason abstractly and quantitatively. |
| INDICATOR/BENCHMARK | 3 | Construct viable arguments and critique the reasoning of others. |
| INDICATOR/BENCHMARK | 4 | Model with mathematics. |
| INDICATOR/BENCHMARK | 5 | Use appropriate tools strategically. |

**South Dakota Content Standards**

**Mathematics**

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

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

**South Dakota Content Standards**

**Science**

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

| GOAL/STRAND | SD.3.LSS. | Third Grade Life Science Standards |
|---|---|---|
| INDICATOR/BENCHMARK | 3-LS4-4. | Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. (SEP: 7; DCI: LS2.C, LS4.D; CCC: Systems, Technology) |

**South Dakota Content Standards**

**Science**

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

| GOAL/STRAND | SD.4.PSS. | Fourth Grade Physical Science Standards |
|---|---|---|
| INDICATOR/BENCHMARK | 4-PS4-3. | Create and compare multiple solutions that use patterns to transfer information. (SEP: 6; DCI: PS4.C, ETS1.C; CCC: Patterns, Technology) |

| GOAL/STRAND | SD.4.LSS. | Fourth Grade Life Science Standards |
|---|---|---|
| INDICATOR/BENCHMARK | 4-LS1-1. | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (SEP: 7 ; DCI: LS1.A; CCC: Systems) |

**Tennessee Academic Standards**

**Mathematics**

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

| STRAND / STANDARD / COURSE | | Standards for Mathematical Practice |
|---|---|---|

| | | |
|---|---|---|
| CONCEPTUAL STRAND / GUIDING QUESTION | 1 | Make sense of problems and persevere in solving them. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 2 | Reason abstractly and quantitatively. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 3 | Construct viable arguments and critique the reasoning of others. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 4 | Model with mathematics. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 5 | Use appropriate tools strategically. |

**Tennessee Academic Standards**

**Mathematics**

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

| STRAND / STANDARD / COURSE | | Standards for Mathematical Practice |
|---|---|---|
| CONCEPTUAL STRAND / GUIDING QUESTION | 1 | Make sense of problems and persevere in solving them. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 2 | Reason abstractly and quantitatively. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 3 | Construct viable arguments and critique the reasoning of others. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 4 | Model with mathematics. |
| CONCEPTUAL STRAND / GUIDING QUESTION | 5 | Use appropriate tools strategically. |

**Tennessee Academic Standards**

**Science**

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

| | | |
|---|---|---|
| **STRAND / STANDARD / COURSE** | **TN.3.LS.** | **Life Sciences (LS)** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | **3.LS1.** | **From Molecules to Organisms: Structures and Processes** |
| GUIDING QUESTION / LEARNING EXPECTATION | 3.LS1.1. | Analyze the internal and external structures that aquatic and land animals and plants have to support survival, growth, behavior, and reproduction. |

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| **STRAND / STANDARD / COURSE** | **TN.3.ETS.** | **Engineering, Technology, and Applications of Science (ETS)** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | **3.ETS1.** | **Engineering Design** |
| GUIDING QUESTION / LEARNING EXPECTATION | 3.ETS1.1. | Design a solution to a real-world problem that includes specified criteria for constraints. |

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|---|---|---|
| **STRAND / STANDARD / COURSE** | **TN.3.ETS.** | **Engineering, Technology, and Applications of Science (ETS)** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | **3.ETS2.** | **Links Among Engineering, Technology, Science, and Society** |
| GUIDING QUESTION / LEARNING EXPECTATION | 3.ETS2.1. | Identify and demonstrate how technology can be used for different purposes. |

**Tennessee Academic Standards**

**Science**

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

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|---|---|---|
| **STRAND / STANDARD / COURSE** | **TN.4.ESS.** | **Earth and Space Sciences (ESS)** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | **4.ESS3.** | **Earth and Human Activity** |
| GUIDING QUESTION / LEARNING EXPECTATION | 4.ESS3.2. | Create an argument, using evidence from research, that human activity (farming, mining, building) can affect the land and ocean in positive and/or negative ways. |

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| **STRAND / STANDARD / COURSE** | **TN.4.ETS.** | **Engineering, Technology, and Applications of Science (ETS)** |

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|---|---|---|
| **CONCEPTUAL STRAND / GUIDING QUESTION** | **4.ETS1.** | **Engineering Design** |
| GUIDING QUESTION / LEARNING EXPECTATION | 4.ETS1.1. | Categorize the effectiveness of design solutions by comparing them to specified criteria for constraints. |
| **STRAND / STANDARD / COURSE** | **TN.4.ETS.** | **Engineering, Technology, and Applications of Science (ETS)** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | **4.ETS2.** | **Links Among Engineering, Technology, Science, and Society** |
| GUIDING QUESTION / LEARNING EXPECTATION | 4.ETS2.1. | Use appropriate tools and measurements to build a model. |

**Tennessee Academic Standards**

**Technology Education**

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

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|---|---|---|
| **STRAND / STANDARD / COURSE** | | **Tennessee K-12 Computer Science State Standards** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | | **Third Grade: Computer Science Standards** |
| **GUIDING QUESTION / LEARNING EXPECTATION** | **3.AT.** | **Algorithmic Thinking** |
| LEARNING EXPECTATION | 3.AT.1. | Discuss the design process and use digital tools to illustrate potential solutions. |
| LEARNING EXPECTATION | 3.AT.2. | Create an algorithm to solve a problem as a collaborative team. |
| LEARNING EXPECTATION | 3.AT.3. | Identify problems to solve and generate questions for investigations. |

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| **STRAND / STANDARD / COURSE** | | **Tennessee K-12 Computer Science State Standards** |
| **CONCEPTUAL STRAND / GUIDING QUESTION** | | **Third Grade: Computer Science Standards** |
| **GUIDING QUESTION / LEARNING EXPECTATION** | **3.PC.** | **Programming Concepts** |
| LEARNING EXPECTATION | 3.PC.1. | Analyze a given list of sub-problems while addressing a larger problem. |

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| LEARNING EXPECTATION | 3.PC.2. | Define a problem or task, decompose it into smaller sub-problems. |

**Tennessee Academic Standards**

**Technology Education**

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

| STRAND / STANDARD / COURSE | | Tennessee K-12 Computer Science State Standards |
|---|---|---|
| CONCEPTUAL STRAND / GUIDING QUESTION | | Fourth Grade: Computer Science Standards |
| GUIDING QUESTION / LEARNING EXPECTATION | 4.AT. | Algorithmic Thinking |
| LEARNING EXPECTATION | 4.AT.1. | Examine logical reasoning to predict outcomes of an algorithm. |

| STRAND / STANDARD / COURSE | | Tennessee K-12 Computer Science State Standards |
|---|---|---|
| CONCEPTUAL STRAND / GUIDING QUESTION | | Fourth Grade: Computer Science Standards |
| GUIDING QUESTION / LEARNING EXPECTATION | 4.DA. | Data Analysis |
| LEARNING EXPECTATION | 4.DA.1. | Collect, organize, analyze, and interpret data to identify solutions and/or make informed decisions. |

| STRAND / STANDARD / COURSE | | Tennessee K-12 Computer Science State Standards |
|---|---|---|
| CONCEPTUAL STRAND / GUIDING QUESTION | | Fourth Grade: Computer Science Standards |
| GUIDING QUESTION / LEARNING EXPECTATION | 4.PC. | Programming Concepts |
| LEARNING EXPECTATION | 4.PC.1. | Test and debug a given program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs, in collaboration with others. |

**Texas Essential Knowledge and Skills (TEKS)**

**Mathematics**

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

| TEKS | 111.5. | Grade 3, Adopted 2012. |
|---|---|---|
| STUDENT EXPECTATION | 111.5.b.1. | Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: |

| | | |
|---|---|---|
| GRADE LEVEL EXPECTATION | 111.5.b.1.B. | Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. |
| GRADE LEVEL EXPECTATION | 111.5.b.1.C. | Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. |
| GRADE LEVEL EXPECTATION | 111.5.b.1.F. | Analyze mathematical relationships to connect and communicate mathematical ideas. |

**Texas Essential Knowledge and Skills (TEKS)**

**Mathematics**

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

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|---|---|---|
| **TEKS** | **111.6.** | **Grade 4, Adopted 2012.** |
| **STUDENT EXPECTATION** | **111.6.b.1.** | **Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:** |
| GRADE LEVEL EXPECTATION | 111.6.b.1.B. | Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. |
| GRADE LEVEL EXPECTATION | 111.6.b.1.C. | Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. |
| GRADE LEVEL EXPECTATION | 111.6.b.1.F. | Analyze mathematical relationships to connect and communicate mathematical ideas. |

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| **TEKS** | **111.6.** | **Grade 4, Adopted 2012.** |
| **STUDENT EXPECTATION** | **111.6.b.5.** | **Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:** |
| GRADE LEVEL EXPECTATION | 111.6.b.5.B. | Represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence. |

**Texas Essential Knowledge and Skills (TEKS)**

**Science**

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

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|---|---|---|
| **TEKS** | **§112.14** | **Science, Grade 3, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.** |
| **STUDENT EXPECTATION** | **§112.14.b** | **Knowledge and skills.** |
| **GRADE LEVEL EXPECTATION** | **§112.14.b.3** | **Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:** |
| INDICATOR | §112.14.b.3.A | analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing |

| | | |
|---|---|---|
| **TEKS** | **§112.14** | **Science, Grade 3, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.** |
| **STUDENT EXPECTATION** | **§112.14.b** | **Knowledge and skills.** |

| | | |
|---|---|---|
| **GRADE LEVEL EXPECTATION** | **§112.14.b.4** | **Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:** |
| INDICATOR | §112.14.b.4.A | collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums |
| **TEKS** | **§112.14** | **Science, Grade 3, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.** |
| **STUDENT EXPECTATION** | **§112.14.b** | **Knowledge and skills.** |
| **GRADE LEVEL EXPECTATION** | **§112.14.b.10** | **Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:** |
| INDICATOR | §112.14.b.10.A | explore how structures and functions of plants and animals allow them to survive in a particular environment |

**Texas Essential Knowledge and Skills (TEKS)**

**Science**

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

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|---|---|---|
| **TEKS** | **§112.15** | **Science, Grade 4, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.** |
| **STUDENT EXPECTATION** | **§112.15.b** | **Knowledge and skills.** |
| **GRADE LEVEL EXPECTATION** | **§112.15.b.3** | **Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:** |
| INDICATOR | §112.15.b.3.A | analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing |
| **TEKS** | **§112.15** | **Science, Grade 4, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.** |
| **STUDENT EXPECTATION** | **§112.15.b** | **Knowledge and skills.** |
| **GRADE LEVEL EXPECTATION** | **§112.15.b.4** | **Scientific investigation and reasoning. The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:** |
| INDICATOR | §112.15.b.4.A | collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums |
| **TEKS** | **§112.15** | **Science, Grade 4, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.** |
| **STUDENT EXPECTATION** | **§112.15.b** | **Knowledge and skills.** |
| **GRADE LEVEL EXPECTATION** | **§112.15.b.10** | **Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environment. The student is expected to:** |
| INDICATOR | §112.15.b.10.A | explore how structures and functions enable organisms to survive in their environment |

**Texas Essential Knowledge and Skills (TEKS)**

**Technology Education**

Grade **3** - Adopted: **2011**

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|---|---|---|
| **TEKS** | **§126.7.** | **Technology Applications, Grades 3-5** |
| **STUDENT EXPECTATION** | **§126.7. (1)** | **Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge and develop digital products. The student is expected to:** |
| GRADE LEVEL EXPECTATION | §126.7. (1)(C) | Use virtual environments to explore systems and issues. |

| | | |
|---|---|---|
| **TEKS** | **§126.7.** | **Technology Applications, Grades 3-5** |
| **STUDENT EXPECTATION** | **§126.7. (4)** | **Critical thinking, problem solving, and decision making. The student researches and evaluates projects using digital tools and resources. The student is expected to:** |
| GRADE LEVEL EXPECTATION | §126.7. (4)(A) | Identify information regarding a problem and explain the steps toward the solution. |

**Texas Essential Knowledge and Skills (TEKS)**

**Technology Education**

Grade **4** - Adopted: **2011**

| | | |
|---|---|---|
| **TEKS** | **§126.7.** | **Technology Applications, Grades 3-5** |
| **STUDENT EXPECTATION** | **§126.7. (1)** | **Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge and develop digital products. The student is expected to:** |
| GRADE LEVEL EXPECTATION | §126.7. (1)(C) | Use virtual environments to explore systems and issues. |

| | | |
|---|---|---|
| **TEKS** | **§126.7.** | **Technology Applications, Grades 3-5** |
| **STUDENT EXPECTATION** | **§126.7. (4)** | **Critical thinking, problem solving, and decision making. The student researches and evaluates projects using digital tools and resources. The student is expected to:** |
| GRADE LEVEL EXPECTATION | §126.7. (4)(A) | Identify information regarding a problem and explain the steps toward the solution. |

**Utah Core Standards**

**Mathematics**

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

| | | |
|---|---|---|
| **STANDARD / AREA OF LEARNING** | **UT.3.MP.** | **MATHEMATICAL PRACTICES (3.MP)** |
| OBJECTIVE / STRAND | 3.MP.1. | Make sense of problems and persevere in solving them. |
| OBJECTIVE / STRAND | 3.MP.2. | Reason abstractly and quantitatively. |
| OBJECTIVE / STRAND | 3.MP.3. | Construct viable arguments and critique the reasoning of others. |
| OBJECTIVE / STRAND | 3.MP.4. | Model with mathematics. |

| | | |
|---|---|---|
| OBJECTIVE / STRAND | 3.MP.5. | Use appropriate tools strategically. |

**Utah Core Standards**

**Mathematics**

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

| STANDARD / AREA OF LEARNING | UT.4.MP. | MATHEMATICAL PRACTICES (4.MP) |
|---|---|---|
| OBJECTIVE / STRAND | 4.MP.1. | Make sense of problems and persevere in solving them. |
| OBJECTIVE / STRAND | 4.MP.2. | Reason abstractly and quantitatively. |
| OBJECTIVE / STRAND | 4.MP.3. | Construct viable arguments and critique the reasoning of others. |
| OBJECTIVE / STRAND | 4.MP.4. | Model with mathematics. |
| OBJECTIVE / STRAND | 4.MP.5. | Use appropriate tools strategically. |

**Utah Core Standards**

**Science**

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

| STANDARD / AREA OF LEARNING | | SEEd - Grade 3 (2019) |
|---|---|---|
| **OBJECTIVE / STRAND** | **Strand 3.2:** | **EFFECTS OF TRAITS ON SURVIVAL** |
| **INDICATOR / CLUSTER** | | **Organisms (plants and animals, including humans) have unique and diverse life cycles, but they all follow a pattern of birth, growth, reproduction, and death. Different organisms vary in how they look and function because they have different inherited traits. An organism's traits are inherited from its parents and can be influenced by the environment. Variations in traits between individuals in a population may provide advantages in surviving and reproducing in particular environments. When the environment changes, some organisms have traits that allow them to survive, some move to new locations, and some do not survive. Humans can design solutions to reduce the impact of environmental changes on organisms.** |
| EXPECTATION / STANDARD | Standard 3.2.6. | Design a solution to a problem caused by a change in the environment that impacts the types of plants and animals living in that environment. Define the problem, identify criteria and constraints, and develop possible solutions. Examples of environmental changes could include changes in land use, water availability, temperature, food, or changes caused by other organisms. (LS2.C, LS4.D, ETS1.A, ETS1.B, ETS1.C) |

**Utah Core Standards**

**Science**

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

| STANDARD / AREA OF LEARNING | | SEEd - Grade 4 (2019) |
|---|---|---|
| **OBJECTIVE / STRAND** | **Strand 4.1:** | **ORGANISMS FUNCTIONING IN THEIR ENVIRONMENT** |

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| **INDICATOR / CLUSTER** | | **Through the study of organisms, inferences can be made about environments both past and present. Plants and animals have both internal and external structures that serve various functions for growth, survival, behavior, and reproduction. Animals use different sense receptors specialized for particular kinds of information to understand and respond to their environment. Some kinds of plants and animals that once lived on Earth can no longer be found. However, fossils from these organisms provide evidence about the types of organisms that lived long ago and the nature of their environments. Additionally, the presence and location of certain fossil types indicate changes that have occurred in environments over time.** |
| EXPECTATION / STANDARD | Standard 4.1.1. | Construct an explanation from evidence that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Emphasize how structures support an organism's survival in its environment and how internal and external structures of plants and animals vary within the same and across multiple Utah environments. Examples of structures could include thorns on a stem to prevent predation or gills on a fish to allow it to breathe underwater. (LS1.A) |

**Utah Core Standards**

**Technology Education**

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

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Concepts** |
| **INDICATOR / CLUSTER** | | **Data and Analysis (DA):** |
| EXPECTATION / STANDARD | | Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, and the need to process data effectively is increasingly important. Data is collected and stored so it can be analyzed to better understand the world and make more accurate predictions. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Concepts** |
| **INDICATOR / CLUSTER** | | **Algorithms and Programming (AP):** |
| EXPECTATION / STANDARD | | An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 1:** | **Fostering an Inclusive Computing Culture** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 1 | Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products. |

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| INDICATOR | 2 | Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 2:** | **Collaborating Around Computing** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 2 | Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 3:** | **Recognizing and Defining Computational Problems** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 2 | Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. |
| INDICATOR | 3 | Evaluate whether it is appropriate and feasible to solve a problem computationally. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 5:** | **Creating Computational Artifacts** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 1 | Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, considering key features, time and resource constraints, and user expectations. |
| INDICATOR | 2 | Create a computational artifact for practical intent, personal expression, or to address a societal issue. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 6:** | **Testing and Refining Computational Artifacts** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |

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| INDICATOR | 1 | Systematically test computational artifacts by considering all scenarios and using test cases. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Algorithms and Programming (AP):** |
| **INDICATOR / CLUSTER** | **Standard 3.AP.1.** | **Create programs that include events, sequences, loops, and simple conditionals to express ideas or address a problem. (Practice 5: Creating Computational Artifacts)** |

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| EXPECTATION / STANDARD | Students will create programs using an elementary block coding program (e.g. ScratchJr.) that include events, sequences, loops, and simple conditionals to complete a task. The new components for third grade are events (starting your computer and having applications automatically start) and simple conditionals (if you click on the character then the character jumps 3 times). |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Algorithms and Programming (AP):** |
| **INDICATOR / CLUSTER** | **Standard 3.AP.5.** | **Use an iterative design process to plan and develop a program by considering the perspectives and preferences of others. (Practice 1: Fostering an Inclusive Computing Culture and Practice 5: Creating Computational Artifacts)** |

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| EXPECTATION / STANDARD | Students will understand the process of planning (key features, time and resource constraints, and user expectations) before developing a program. Once the program is created, they will review the program with another team for feedback before revising (iterating) and creating an improved program. |

**Utah Core Standards**

**Technology Education**

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

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Concepts** |
| **INDICATOR / CLUSTER** | | **Data and Analysis (DA):** |

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|---|---|
| EXPECTATION / STANDARD | Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, and the need to process data effectively is increasingly important. Data is collected and stored so it can be analyzed to better understand the world and make more accurate predictions. |

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| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Concepts** |
| **INDICATOR / CLUSTER** | | **Algorithms and Programming (AP):** |

| | | |
|---|---|---|
| EXPECTATION / STANDARD | | An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 1:** | **Fostering an Inclusive Computing Culture** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 1 | Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products. |
| INDICATOR | 2 | Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 2:** | **Collaborating Around Computing** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 2 | Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 3:** | **Recognizing and Defining Computational Problems** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 2 | Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. |
| INDICATOR | 3 | Evaluate whether it is appropriate and feasible to solve a problem computationally. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |

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| **INDICATOR / CLUSTER** | **Practice 5:** | **Creating Computational Artifacts** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 1 | Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, considering key features, time and resource constraints, and user expectations. |
| INDICATOR | 2 | Create a computational artifact for practical intent, personal expression, or to address a societal issue. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Core Practices** |
| **INDICATOR / CLUSTER** | **Practice 6:** | **Testing and Refining Computational Artifacts** |
| **EXPECTATION / STANDARD** | | **By the end of Grade 5, students should be able to:** |
| INDICATOR | 1 | Systematically test computational artifacts by considering all scenarios and using test cases. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Algorithms and Programming (AP):** |
| **INDICATOR / CLUSTER** | **Standard 4.AP.2.** | **Create programs that include events, loops, and conditionals. (Practice 5: Creating Computational Artifacts)** |
| EXPECTATION / STANDARD | | Students will create a set of instructions (a program) that include events, loops, and conditionals to facilitate and manage tasks. Students will create programs using an elementary block coding program (e.g. ScratchJr.) that include events, sequences, loops, and simple conditionals to complete a task. Event examples include mouse clicks, typing on the keyboard, and collisions between objects. Conditional statements are sets of commands that are tied to specific actions based on whether the condition evaluates to TRUE or FALSE. |
| **STANDARD / AREA OF LEARNING** | | **Utah K-5 Computer Science Standards** |
| **OBJECTIVE / STRAND** | | **Computational Thinking (CT):** |
| **INDICATOR / CLUSTER** | **Standard 4.CT.1.** | **Determine specific aspects of patterns between or within problems that can be abstracted out to leave only the common or important elements. (Practice 3: Recognizing and Defining Computational Problems and Practice 4: Developing and Using Abstractions)** |
| EXPECTATION / STANDARD | | Students will determine patterns within problems to identify core elements. Students will seek to identify key strategies to address the core elements, and then build a solution to address the comprehensive problem. For example, when the school is purchasing recess equipment, the students can identify possible challenges and problems that may exist for their community. Students can identify how to address those problems individually, then create a comprehensive solution to make sure recess is a success. |

**Vermont Content Standards**

**Mathematics**

Grade **3** - Adopted: **2010 (CCSS)**

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| **STANDARD / STRAND** | **VT.MP.** | **Mathematical Practices** |

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

**Vermont Content Standards**

**Mathematics**

Grade **4** - Adopted: **2010 (CCSS)**

| STANDARD / STRAND | VT.MP. | Mathematical Practices |
|---|---|---|
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | MP.1. | Make sense of problems and persevere in solving them. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | MP.2. | Reason abstractly and quantitatively. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | MP.3. | Construct viable arguments and critique the reasoning of others. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | MP.4. | Model with mathematics. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | MP.5. | Use appropriate tools strategically. |

**Vermont Content Standards**

**Science**

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

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

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

**Vermont Content Standards**

**Science**

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

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

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|---|---|---|
| **STANDARD / STRAND** | **VT.3-5-ETS.** | **ENGINEERING DESIGN** |
| **ESSENTIAL KNOWLEDGE AND SKILL / STANDARD** | **3-5-ETS1.** | **Engineering Design** |

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

**Vermont Content Standards**

**Technology Education**

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

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

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

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

**Vermont Content Standards**

**Technology Education**

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

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|---|---|---|
| **STANDARD / STRAND** | **ISTE-S.3.** | **Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.** |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | ISTE-S.3.d. | Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. |
| **STANDARD / STRAND** | **ISTE-S.4.** | **Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | ISTE-S.4.a. | Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | ISTE-S.4.b. | Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. |
| **STANDARD / STRAND** | **ISTE-S.5.** | **Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.** |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | ISTE-S.5.a. | Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | ISTE-S.5.b. | Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. |
| ESSENTIAL KNOWLEDGE AND SKILL / STANDARD | ISTE-S.5.d. | Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. |

**Virginia Standards of Learning**

**Science**

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

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|---|---|---|
| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **3.1.a.** | **asking questions and defining problems** |
| PROGRESS INDICATOR | 3.1.a.3. | define a simple design problem that can be solved through the development of an object, tool, process, or system |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **3.1.b.** | **planning and carrying out investigations** |
| PROGRESS INDICATOR | 3.1.b.2. | use appropriate methods and/or tools for collecting data |
| PROGRESS INDICATOR | 3.1.b.6. | use tools and/or materials to design and/or build a device that solves a specific problem |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **3.1.c.** | **interpreting, analyzing, and evaluating data** |
| PROGRESS INDICATOR | 3.1.c.3. | analyze data from tests of an object or tool to determine if it works as intended |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **3.1.d.** | **constructing and critiquing conclusions and explanations** |
| PROGRESS INDICATOR | 3.1.d.3. | describe how scientific ideas apply to design solutions |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **3.1.e.** | **developing and using models** |
| PROGRESS INDICATOR | 3.1.e.1. | use models to demonstrate simple phenomena and natural processes |
| PROGRESS INDICATOR | 3.1.e.2. | develop a model (e.g., diagram or simple physical prototype) to illustrate a proposed object, tool, or process |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **3.1.f.** | **obtaining, evaluating, and communicating information** |
| PROGRESS INDICATOR | 3.1.f.1. | read and comprehend reading-level appropriate texts and/or other reliable media |
| PROGRESS INDICATOR | 3.1.f.2. | communicate scientific information, design ideas, and/or solutions with others |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Living Systems and Processes** |
| **INDICATOR / STANDARD** | **3.5.** | **The student will investigate and understand that aquatic and terrestrial ecosystems support a diversity of organisms. Key ideas include:** |
| INDICATOR | 3.5.b. | relationships exist among organisms in an ecosystem. |

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| **STRAND / TOPIC** | | **Grade Three – Interactions in our world** |
| **STANDARD / STRAND** | | **Earth Resources** |
| **INDICATOR / STANDARD** | **3.8.** | **The student will investigate and understand that natural events and humans influence ecosystems. Key ideas include:** |
| INDICATOR | 3.8.a. | human activity affects the quality of air, water, and habitats; |

**Virginia Standards of Learning**

**Science**

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

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| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **4.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **4.1.a.** | **asking questions and defining problems** |
| PROGRESS INDICATOR | 4.1.a.3. | define a simple design problem that can be solved through the development of an object, tool, process, or system |

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| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **4.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |

| | | |
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| **INDICATOR** | **4.1.b.** | **planning and carrying out investigations** |
| PROGRESS INDICATOR | 4.1.b.3. | use tools and/or materials to design and/or build a device that solves a specific problem |

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|---|---|---|
| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **4.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **4.1.c.** | **interpreting, analyzing, and evaluating data** |
| PROGRESS INDICATOR | 4.1.c.4. | analyze data from tests of an object or tool to determine whether it works as intended |

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|---|---|---|
| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **4.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **4.1.e.** | **developing and using models** |
| PROGRESS INDICATOR | 4.1.e.1. | develop and/or use models to explain natural phenomena |
| PROGRESS INDICATOR | 4.1.e.2. | identify limitations of models |

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| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Scientific and Engineering Practices** |
| **INDICATOR / STANDARD** | **4.1.** | **The student will demonstrate an understanding of scientific and engineering practices by:** |
| **INDICATOR** | **4.1.f.** | **obtaining, evaluating, and communicating information** |
| PROGRESS INDICATOR | 4.1.f.1. | read and comprehend reading-level-appropriate texts and/or other reliable media |
| PROGRESS INDICATOR | 4.1.f.2. | communicate scientific information, design ideas, and/or solutions with others |

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| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Living Systems and Processes** |
| **INDICATOR / STANDARD** | **4.3.** | **The student will investigate and understand that organisms, including humans, interact with one another and with the nonliving components in the ecosystem. Key ideas include:** |
| INDICATOR | 4.3.a. | interrelationships exist in populations, communities, and ecosystems; |

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| **STRAND / TOPIC** | | **Grade Four – Our place in the solar system** |
| **STANDARD / STRAND** | | **Earth Resources** |
| **INDICATOR / STANDARD** | **4.8.** | **The student will investigate and understand that Virginia has important natural resources. Key resources include:** |
| INDICATOR | 4.8.b. | plants and animals; |

**Virginia Standards of Learning**

**Technology Education**

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

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|---|---|---|
| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Algorithms and Programming** |
| **INDICATOR / STANDARD** | **3.1.** | **The student will construct sets of step-by-step instructions (algorithms), both independently and collaboratively** |
| INDICATOR | 3.1.a. | Using sequencing. |

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| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Algorithms and Programming** |
| **INDICATOR / STANDARD** | **3.2.** | **The student will construct programs to accomplish tasks as a means of creative expression using a block or text based programming language, both independently and collaboratively** |
| INDICATOR | 3.2.a. | Using sequencing. |

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| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Algorithms and Programming** |
| INDICATOR / STANDARD | 3.3. | The student will analyze, correct, and improve (debug) an algorithm that includes sequencing, events, and loops. [Related SOL areas – Math: Problem Solving, English: Editing] |

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| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Data and Analysis** |
| INDICATOR / STANDARD | 3.12. | The student will answer questions by using a computer to observe data in order for the student to draw conclusions and make predictions. [Related SOL: Math 3.15, HSS 3.1d] |

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

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|---|---|---|
| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **KC.** | **Knowledge Constructor (KC)** |
| **INDICATOR / STANDARD** | | **Students critically curate a variety of digital resources using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.** |

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| **INDICATOR** | **KC.D.** | **Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions.** |
| PROGRESS INDICATOR | KC.D.i. | Students use digital resources and tools to explore real-world issues and problems and collaborate with others to find answers or solutions. |

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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
| **INDICATOR / STANDARD** | | **Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.** |
| **INDICATOR** | **ID.A.** | **Know and use appropriate technologies in a purposeful design process for generating ideas, testing theories, creating innovative digital works, or solving authentic problems.** |
| PROGRESS INDICATOR | ID.A.i. | With guidance from an educator, students use appropriate technologies to explore and practice how a design process works to generate ideas, consider solutions, plan to solve a problem, or create innovative products that are shared with others. |

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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
| **INDICATOR / STANDARD** | | **Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.** |
| **INDICATOR** | **ID.B.** | **Select and use appropriate technologies to plan and manage a design process that considers design constraints and calculated risks.** |
| PROGRESS INDICATOR | ID.B.i. | With guidance from an educator, students select and use appropriate technologies to plan and manage a design process. |

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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
| **INDICATOR / STANDARD** | | **Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.** |
| **INDICATOR** | **ID.C.** | **Use appropriate technologies to develop, test, and refine prototypes as part of a cyclical design process.** |
| PROGRESS INDICATOR | ID.C.i. | With guidance from an educator, students use appropriate technologies in a cyclical design process to develop prototypes and reflect on the role of trial and error. |

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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
| **INDICATOR / STANDARD** | | **Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.** |
| **INDICATOR** | **ID.D.** | **Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.** |
| PROGRESS INDICATOR | ID.D.i. | With guidance from an educator, students demonstrate perseverance when working with open-ended problem. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CT.** | **Computational Thinker (CT)** |
| **INDICATOR / STANDARD** | | **Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.** |
| **INDICATOR** | **CT.A.** | **Formulate problem definitions suited for technology-assisted methods such as data analysis, modeling and algorithmic thinking in exploring and finding solutions.** |
| PROGRESS INDICATOR | CT.A.i. | With guidance from an educator, students create, identify, explore, and solve problems by selecting technology-assisted methods such as data analysis, modeling, and algorithmic thinking. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CT.** | **Computational Thinker (CT)** |
| **INDICATOR / STANDARD** | | **Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.** |
| **INDICATOR** | **CT.C.** | **Break problems into component parts, extract key information, and develop descriptive models, using technologies when appropriate, to understand complex systems or facilitate problem-solving.** |
| PROGRESS INDICATOR | CT.C.i. | Students break down problems into smaller parts, identify key information, and propose solutions using technologies, when appropriate. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CC.** | **Creative Communicator (CC)** |
| **INDICATOR / STANDARD** | | **Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.** |
| **INDICATOR** | **CC.B.** | **Create original works or responsibly repurpose or remix digital resources into new creations.** |
| PROGRESS INDICATOR | CC.B.i. | Students use appropriate technologies to create original works and learn strategies for remixing other digital works to create new digital works. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CC.** | **Creative Communicator (CC)** |
| **INDICATOR / STANDARD** | | **Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.** |
| **INDICATOR** | **CC.C.** | **Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.** |
| PROGRESS INDICATOR | CC.C.i. | Students create digital works to communicate ideas visually and graphically. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
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| **STANDARD / STRAND** | **GC.** | **Global Collaborator (GC)** |

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| **INDICATOR / STANDARD** | | **Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.** |
| **INDICATOR** | **GC.D.** | **Explore local and global issues and use collaborative technologies to work with others to investigate solutions.** |
| PROGRESS INDICATOR | GC.D.i. | Students use collaborative technologies to work with others to understand problems and investigate solutions to local and global issues. |

**Virginia Standards of Learning**

**Technology Education**

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

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|---|---|---|
| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Algorithms and Programming** |
| **INDICATOR / STANDARD** | **4.1.** | **The student will construct sets of step-by-step instructions (algorithms) both independently and collaboratively** |
| INDICATOR | 4.1.a. | Using sequencing. |

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|---|---|---|
| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Algorithms and Programming** |
| **INDICATOR / STANDARD** | **4.2.** | **The student will construct programs to accomplish a task as a means of creative expression using a block or text based programming language, both independently and collaboratively** |
| INDICATOR | 4.2.a. | Using sequencing. |

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| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Algorithms and Programming** |
| INDICATOR / STANDARD | 4.3. | The student will analyze, correct, and improve (debug) an algorithm that includes sequencing, events, loops and variables. [Related SOL areas – Math: Problem Solving, English: Editing] |

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|---|---|---|
| **STRAND / TOPIC** | **VA.CS.** | **Computer Science** |
| **STANDARD / STRAND** | | **Data and Analysis** |
| INDICATOR / STANDARD | 4.12. | The student will answer questions by using a computer to manipulate data in order for the student to draw conclusions and make predictions. [Related SOL: Math 4.14] |

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

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|---|---|---|
| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **KC.** | **Knowledge Constructor (KC)** |
| **INDICATOR / STANDARD** | | **Students critically curate a variety of digital resources using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.** |

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|---|---|---|
| **INDICATOR** | **KC.D.** | **Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions.** |
| PROGRESS INDICATOR | KC.D.i. | Students use digital resources and tools to explore real-world issues and problems and collaborate with others to find answers or solutions. |

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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
| **INDICATOR / STANDARD** | | **Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.** |
| **INDICATOR** | **ID.A.** | **Know and use appropriate technologies in a purposeful design process for generating ideas, testing theories, creating innovative digital works, or solving authentic problems.** |
| PROGRESS INDICATOR | ID.A.i. | With guidance from an educator, students use appropriate technologies to explore and practice how a design process works to generate ideas, consider solutions, plan to solve a problem, or create innovative products that are shared with others. |

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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
| **INDICATOR / STANDARD** | | **Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.** |
| **INDICATOR** | **ID.B.** | **Select and use appropriate technologies to plan and manage a design process that considers design constraints and calculated risks.** |
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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
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| **STRAND / TOPIC** | | **Digital Learning Integration Standards of Learning for Virginia Public Schools** |
| **STANDARD / STRAND** | **ID.** | **Innovative Designer (ID)** |
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| PROGRESS INDICATOR | ID.D.i. | With guidance from an educator, students demonstrate perseverance when working with open-ended problem. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CT.** | **Computational Thinker (CT)** |
| **INDICATOR / STANDARD** | | **Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.** |
| **INDICATOR** | **CT.A.** | **Formulate problem definitions suited for technology-assisted methods such as data analysis, modeling and algorithmic thinking in exploring and finding solutions.** |
| PROGRESS INDICATOR | CT.A.i. | With guidance from an educator, students create, identify, explore, and solve problems by selecting technology-assisted methods such as data analysis, modeling, and algorithmic thinking. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CT.** | **Computational Thinker (CT)** |
| **INDICATOR / STANDARD** | | **Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.** |
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| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CC.** | **Creative Communicator (CC)** |
| **INDICATOR / STANDARD** | | **Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.** |
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| PROGRESS INDICATOR | CC.B.i. | Students use appropriate technologies to create original works and learn strategies for remixing other digital works to create new digital works. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **CC.** | **Creative Communicator (CC)** |
| **INDICATOR / STANDARD** | | **Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.** |
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| PROGRESS INDICATOR | CC.C.i. | Students create digital works to communicate ideas visually and graphically. |

| STRAND / TOPIC | | Digital Learning Integration Standards of Learning for Virginia Public Schools |
|---|---|---|
| **STANDARD / STRAND** | **GC.** | **Global Collaborator (GC)** |

| | | |
|---|---|---|
| **INDICATOR / STANDARD** | | **Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.** |
| **INDICATOR** | **GC.D.** | **Explore local and global issues and use collaborative technologies to work with others to investigate solutions.** |
| PROGRESS INDICATOR | GC.D.i. | Students use collaborative technologies to work with others to understand problems and investigate solutions to local and global issues. |

**Washington DC Academic Standards**

**Mathematics**

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

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

**Washington DC Academic Standards**

**Mathematics**

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

| CONTENT STANDARD / STRAND / DISCIPLINE | DC.CC.4.MP. | Mathematical Practices |
|---|---|---|
| STANDARD / ESSENTIAL SKILL | 4.MP.1. | Make sense of problems and persevere in solving them. |
| STANDARD / ESSENTIAL SKILL | 4.MP.2. | Reason abstractly and quantitatively. |
| STANDARD / ESSENTIAL SKILL | 4.MP.3. | Construct viable arguments and critique the reasoning of others. |

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|---|---|---|
| STANDARD / ESSENTIAL SKILL | 4.MP.4. | Model with mathematics. |
| STANDARD / ESSENTIAL SKILL | 4.MP.5. | Use appropriate tools strategically. |

**Washington DC Academic Standards**

**Science**

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

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

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

**Washington DC Academic Standards**

**Science**

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

| | | |
|---|---|---|
| **CONTENT STANDARD / STRAND / DISCIPLINE** | **DC.4-LS.** | **LIFE SCIENCE** |
| **STANDARD / ESSENTIAL SKILL** | **4-LS1.** | **From Molecules to Organisms: Structures and Processes** |

| STUDENT EXPECTATION / ESSENTIAL SKILL | | Students who demonstrate understanding can: |
|---|---|---|
| EXPECTATION | 4-LS1-1. | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. |

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

**Washington State K-12 Learning Standards and Guidelines**

**Mathematics**

Grade **3** - Adopted: **2011**

| EALR | WA.MP. | Mathematical Practices |
|---|---|---|
| BIG IDEA / CORE CONTENT | MP.1. | Make sense of problems and persevere in solving them. |
| BIG IDEA / CORE CONTENT | MP.2. | Reason abstractly and quantitatively. |
| BIG IDEA / CORE CONTENT | MP.3. | Construct viable arguments and critique the reasoning of others. |
| BIG IDEA / CORE CONTENT | MP.4. | Model with mathematics. |
| BIG IDEA / CORE CONTENT | MP.5. | Use appropriate tools strategically. |

**Washington State K-12 Learning Standards and Guidelines**

**Mathematics**

Grade **4** - Adopted: **2011**

| EALR | WA.MP. | Mathematical Practices |
|---|---|---|
| BIG IDEA / CORE CONTENT | MP.1. | Make sense of problems and persevere in solving them. |
| BIG IDEA / CORE CONTENT | MP.2. | Reason abstractly and quantitatively. |
| BIG IDEA / CORE CONTENT | MP.3. | Construct viable arguments and critique the reasoning of others. |
| BIG IDEA / CORE CONTENT | MP.4. | Model with mathematics. |
| BIG IDEA / CORE CONTENT | MP.5. | Use appropriate tools strategically. |

**Washington State K-12 Learning Standards and Guidelines**

**Science**

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

| EALR | WA.3-LS. | LIFE SCIENCE |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | **3-LS4.** | **Biological Evolution: Unity and Diversity** |
| **CORE CONTENT / CONTENT STANDARD** | | **Students who demonstrate understanding can:** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 3-LS4-4. | Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. |

| EALR | WA.3-5-ETS. | ENGINEERING DESIGN |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | **3-5-ETS1.** | **Engineering Design** |
| **CORE CONTENT / CONTENT STANDARD** | | **Students who demonstrate understanding can:** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 3-5-ETS1-1. | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |

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

**Washington State K-12 Learning Standards and Guidelines**

**Science**

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

| EALR | WA.4-LS. | LIFE SCIENCE |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | **4-LS1.** | **From Molecules to Organisms: Structures and Processes** |
| **CORE CONTENT / CONTENT STANDARD** | | **Students who demonstrate understanding can:** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 4-LS1-1. | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. |

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

**Washington State K-12 Learning Standards and Guidelines**

**Technology Education**

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

| EALR | WA.ET.3-5. | Educational Technology Learning Standards |
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| **BIG IDEA / CORE CONTENT** | **3-5.4.** | **Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** |
| CORE CONTENT / CONTENT STANDARD | 3-5.4.b. | Students use digital and non-digital tools to plan and manage a design process. |

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| **EALR** | **WA.ET.3-5.** | **Educational Technology Learning Standards** |
| **BIG IDEA / CORE CONTENT** | **3-5.5.** | **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.** |
| CORE CONTENT / CONTENT STANDARD | 3-5.5.a. | Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator. |
| CORE CONTENT / CONTENT STANDARD | 3-5.5.d. | Students understand and explore basic concepts related to automation, patterns and algorithmic thinking. |

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| **EALR** | | **Computer Science** |
| **BIG IDEA / CORE CONTENT** | | **Level 1B: 3-5** |
| **CORE CONTENT / CONTENT STANDARD** | **1B-CS.** | **Computing Systems** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-CS-03. | Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (P. 6.2) |

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| **EALR** | | **Computer Science** |
| **BIG IDEA / CORE CONTENT** | | **Level 1B: 3-5** |
| **CORE CONTENT / CONTENT STANDARD** | **1B-AP.** | **Algorithms and Programming** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-08. | Compare and refine multiple algorithms for the same task and determine which is the most appropriate. (P. 6.3, P. 3.3) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-11. | Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. (P. 3.2) |

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|---|---|---|
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-12. | Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. (P. 5.3) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-13. | Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. (P. 1.1, P. 5.1) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-15. | Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended. (P. 6.1, P. 6.2) |
| **EALR** | | **Computer Science** |
| **BIG IDEA / CORE CONTENT** | | **Level 1B: 3-5** |
| **CORE CONTENT / CONTENT STANDARD** | **1B-IC.** | **Impacts of Computing** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-IC-19. | Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P. 1.2) |

**Washington State K-12 Learning Standards and Guidelines**

**Technology Education**

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

| **EALR** | **WA.ET.3-5.** | **Educational Technology Learning Standards** |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | **3-5.4.** | **Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** |
| CORE CONTENT / CONTENT STANDARD | 3-5.4.b. | Students use digital and non-digital tools to plan and manage a design process. |

| **EALR** | **WA.ET.3-5.** | **Educational Technology Learning Standards** |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | **3-5.5.** | **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.** |
| CORE CONTENT / CONTENT STANDARD | 3-5.5.a. | Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator. |
| CORE CONTENT / CONTENT STANDARD | 3-5.5.d. | Students understand and explore basic concepts related to automation, patterns and algorithmic thinking. |

| EALR | | Computer Science |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | | **Level 1B: 3-5** |
| **CORE CONTENT / CONTENT STANDARD** | **1B-CS.** | **Computing Systems** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-CS-03. | Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (P. 6.2) |

| EALR | | Computer Science |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | | **Level 1B: 3-5** |
| **CORE CONTENT / CONTENT STANDARD** | **1B-AP.** | **Algorithms and Programming** |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-08. | Compare and refine multiple algorithms for the same task and determine which is the most appropriate. (P. 6.3, P. 3.3) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-11. | Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. (P. 3.2) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-12. | Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. (P. 5.3) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-13. | Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. (P. 1.1, P. 5.1) |
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-AP-15. | Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended. (P. 6.1, P. 6.2) |

| EALR | | Computer Science |
|---|---|---|
| **BIG IDEA / CORE CONTENT** | | **Level 1B: 3-5** |

| CORE CONTENT / CONTENT STANDARD | 1B-IC. | Impacts of Computing |
|---|---|---|
| CONTENT STANDARD / PERFORMANCE EXPECTATION | 1B-IC-19. | Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P. 1.2) |

**West Virginia College and Career Readiness Standards**

**Mathematics**

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

| CONTENT STANDARD / COURSE | WV.M.MHM. | Mathematical Habits of Mind |
|---|---|---|
| CONTENT STANDARD / OBJECTIVE | MHM1. | Make sense of problems and persevere in solving them. |
| CONTENT STANDARD / OBJECTIVE | MHM2. | Reason abstractly and quantitatively. |
| CONTENT STANDARD / OBJECTIVE | MHM3. | Construct viable arguments and critique the reasoning of others. |
| CONTENT STANDARD / OBJECTIVE | MHM4. | Model with mathematics. |
| CONTENT STANDARD / OBJECTIVE | MHM5. | Use appropriate tools strategically. |

**West Virginia College and Career Readiness Standards**

**Mathematics**

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

| CONTENT STANDARD / COURSE | WV.M.MHM. | Mathematical Habits of Mind |
|---|---|---|
| CONTENT STANDARD / OBJECTIVE | MHM1. | Make sense of problems and persevere in solving them. |
| CONTENT STANDARD / OBJECTIVE | MHM2. | Reason abstractly and quantitatively. |
| CONTENT STANDARD / OBJECTIVE | MHM3. | Construct viable arguments and critique the reasoning of others. |

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| CONTENT STANDARD / OBJECTIVE | MHM4. | Model with mathematics. |
| CONTENT STANDARD / OBJECTIVE | MHM5. | Use appropriate tools strategically. |

**West Virginia College and Career Readiness Standards**

**Science**

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

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|---|---|---|
| **CONTENT STANDARD / COURSE** | | **Science Indicators Grades 3-5** |
| **CONTENT STANDARD / OBJECTIVE** | | **College- and Career-Readiness Indicators for Science** |
| **OBJECTIVE / EXPECTATION** | | **Practices of Scientists and Engineers** |
| GRADE LEVEL EXPECTATION | | Developing and using models |
| GRADE LEVEL EXPECTATION | | Constructing explanations and designing solutions |
| GRADE LEVEL EXPECTATION | | Obtaining, evaluating, and communicating information |

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|---|---|---|
| **CONTENT STANDARD / COURSE** | | **Science Indicators Grades 3-5** |
| **CONTENT STANDARD / OBJECTIVE** | | **College- and Career-Readiness Indicators for Science** |
| **OBJECTIVE / EXPECTATION** | | **Science Connecting Concepts** |
| GRADE LEVEL EXPECTATION | | Investigating and explaining cause and effect |
| GRADE LEVEL EXPECTATION | | Determining the relationships between structure and function |

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|---|---|---|
| **CONTENT STANDARD / COURSE** | | **Science Indicators Grades 3-5** |
| **CONTENT STANDARD / OBJECTIVE** | | **College- and Career-Readiness Indicators for Science** |
| **OBJECTIVE / EXPECTATION** | | **Science Literacy** |
| GRADE LEVEL EXPECTATION | | Utilizing and connecting ideas among informational (factual) scientific texts |

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| GRADE LEVEL EXPECTATION | | Integrating and applying information presented in various media formats when writing and speaking |
| GRADE LEVEL EXPECTATION | | Building and appropriately using science domain vocabulary and phrases |
| **CONTENT STANDARD / COURSE** | | **Science – Grade 3** |
| **CONTENT STANDARD / OBJECTIVE** | | **Life Science** |
| **OBJECTIVE / EXPECTATION** | | **Interdependent Relationships in Ecosystems** |
| GRADE LEVEL EXPECTATION | S.3.8. | Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. |
| **CONTENT STANDARD / COURSE** | | **Science – Grade 3** |
| **CONTENT STANDARD / OBJECTIVE** | | **Engineering, Technology, and Applications of Science** |
| **OBJECTIVE / EXPECTATION** | | **Engineering Design** |
| GRADE LEVEL EXPECTATION | S.3.16. | 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 | S.3.17. | 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 | S.3.18. | 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. |

**West Virginia College and Career Readiness Standards**

**Science**

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

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|---|---|---|
| **CONTENT STANDARD / COURSE** | | **Science Indicators Grades 3-5** |
| **CONTENT STANDARD / OBJECTIVE** | | **College- and Career-Readiness Indicators for Science** |
| **OBJECTIVE / EXPECTATION** | | **Practices of Scientists and Engineers** |
| GRADE LEVEL EXPECTATION | | Developing and using models |
| GRADE LEVEL EXPECTATION | | Constructing explanations and designing solutions |

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|---|---|---|
| GRADE LEVEL EXPECTATION | | Obtaining, evaluating, and communicating information |

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| **CONTENT STANDARD / COURSE** | | **Science Indicators Grades 3-5** |
| **CONTENT STANDARD / OBJECTIVE** | | **College- and Career-Readiness Indicators for Science** |
| **OBJECTIVE / EXPECTATION** | | **Science Connecting Concepts** |
| GRADE LEVEL EXPECTATION | | Investigating and explaining cause and effect |
| GRADE LEVEL EXPECTATION | | Determining the relationships between structure and function |

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| **CONTENT STANDARD / COURSE** | | **Science Indicators Grades 3-5** |
| **CONTENT STANDARD / OBJECTIVE** | | **College- and Career-Readiness Indicators for Science** |
| **OBJECTIVE / EXPECTATION** | | **Science Literacy** |
| GRADE LEVEL EXPECTATION | | Utilizing and connecting ideas among informational (factual) scientific texts |
| GRADE LEVEL EXPECTATION | | Integrating and applying information presented in various media formats when writing and speaking |
| GRADE LEVEL EXPECTATION | | Building and appropriately using science domain vocabulary and phrases |

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| **CONTENT STANDARD / COURSE** | | **Science – Grade 4** |
| **CONTENT STANDARD / OBJECTIVE** | | **Life Science** |
| **OBJECTIVE / EXPECTATION** | | **Structure, Function, and Information Processing** |
| GRADE LEVEL EXPECTATION | S.4.8. | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. |

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| **CONTENT STANDARD / COURSE** | | **Science – Grade 4** |
| **CONTENT STANDARD / OBJECTIVE** | | **Engineering, Technology, and Applications of Science** |
| **OBJECTIVE / EXPECTATION** | | **Engineering Design** |

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|---|---|---|
| GRADE LEVEL EXPECTATION | S.4.14. | 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 | S.4.15. | 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 | S.4.16. | 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. |

**West Virginia College and Career Readiness Standards**

**Technology Education**

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

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|---|---|---|
| **CONTENT STANDARD / COURSE** | **2520.14.** | **West Virginia College- and Career-Readiness Standards for Technology and Computer Science** |
| **CONTENT STANDARD / OBJECTIVE** | | **Technology 3-5** |
| **OBJECTIVE / EXPECTATION** | | **Innovative Designer** |
| GRADE LEVEL EXPECTATION | T.3-5.13. | With support and guidance, select appropriate technology tools to solve problems and communicate information. |

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| **CONTENT STANDARD / COURSE** | **2520.14.** | **West Virginia College- and Career-Readiness Standards for Technology and Computer Science** |
| **CONTENT STANDARD / OBJECTIVE** | | **Computer Science 3-5** |
| **OBJECTIVE / EXPECTATION** | | **Computer Systems and Computational Thinking** |
| GRADE LEVEL EXPECTATION | CS.3-5.1. | Verbalize the steps to solve a problem. |
| GRADE LEVEL EXPECTATION | CS.3-5.2. | Work together in a team to solve a problem. |

**West Virginia College and Career Readiness Standards**

**Technology Education**

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

| | | |
|---|---|---|
| **CONTENT STANDARD / COURSE** | **2520.14.** | **West Virginia College- and Career-Readiness Standards for Technology and Computer Science** |
| **CONTENT STANDARD / OBJECTIVE** | | **Technology 3-5** |
| **OBJECTIVE / EXPECTATION** | | **Innovative Designer** |
| GRADE LEVEL EXPECTATION | T.3-5.13. | With support and guidance, select appropriate technology tools to solve problems and communicate information. |

| CONTENT STANDARD / COURSE | 2520.14. | West Virginia College- and Career-Readiness Standards for Technology and Computer Science |
|---|---|---|
| CONTENT STANDARD / OBJECTIVE | | Computer Science 3-5 |
| OBJECTIVE / EXPECTATION | | Computer Systems and Computational Thinking |
| GRADE LEVEL EXPECTATION | CS.3-5.1. | Verbalize the steps to solve a problem. |
| GRADE LEVEL EXPECTATION | CS.3-5.2. | Work together in a team to solve a problem. |

**Wisconsin Academic Standards**

**Mathematics**

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

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

**Wisconsin Academic Standards**

**Mathematics**

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

| DOMAIN | | Standards for Mathematical Practice |
|---|---|---|
| CONTENT STANDARD | Math Practice 1: | Make sense of problems and persevere in solving them. |
| CONTENT STANDARD | Math Practice 2: | Reason abstractly and quantitatively. |

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|---|---|---|
| CONTENT STANDARD | Math Practice 3: | Construct viable arguments, and appreciate and critique the reasoning of others. |
| CONTENT STANDARD | Math Practice 4: | Model with mathematics. |
| CONTENT STANDARD | Math Practice 5: | Use appropriate tools strategically. |

**Wisconsin Academic Standards**

**Science**

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

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| **CONTENT STANDARD** | **SCI.CC.** | **Crosscutting Concepts (CC)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.CC2.** | **Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | | **Cause and Effect** |
| LEARNING CONTINUUM | SCI.CC2.3-5. | Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a cause and effect relationship. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| **CONTENT STANDARD** | **SCI.CC.** | **Crosscutting Concepts (CC)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.CC6.** | **Students use science and engineering practices, disciplinary core ideas, and an understanding of structure and function to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | | **Structure and Function** |
| LEARNING CONTINUUM | SCI.CC6.3-5. | Students understand different materials have different substructures, which can sometimes be observed; and substructures have shapes and parts that serve functions. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| **CONTENT STANDARD** | **SCI.SEP.** | **Science and Engineering Practices (SEP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.SEP2.** | **Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP2.A.** | **Developing Models – Students build and revise simple models and use models to represent events and design solutions. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP2.A.3-5.1. | Identify limitations of models. |

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| LEARNING CONTINUUM | SCI.SEP2.A.3-5.5. | Develop a diagram or simple physical prototype to convey a proposed object, tool, or process. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.SEP. | Science and Engineering Practices (SEP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.SEP 3. | Students plan and carry out investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.SEP 3.A. | Planning and Conducting Investigations – Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following: |
| LEARNING CONTINUUM | SCI.SEP3.A.3-5.2. | Evaluate appropriate methods and tools for collecting data. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.SEP. | Science and Engineering Practices (SEP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.SEP 6. | Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.SEP 6.A. | Construct an Explanation – Students use evidence to construct explanations that specify variables which describe and predict phenomena. This includes the following: |
| LEARNING CONTINUUM | SCI.SEP 6.A.3-5.1. | Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). |
| LEARNING CONTINUUM | SCI.SEP 6.A.3-5.2. | Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation. |
| LEARNING CONTINUUM | SCI.SEP 6.A.3-5.3. | Identify the evidence that supports particular points in an explanation. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.SEP. | Science and Engineering Practices (SEP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.SEP 6. | Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.SEP 6.B. | Design Solutions – Students use evidence to create multiple solutions to design problems. This includes the following: |
| LEARNING CONTINUUM | SCI.SEP 6.B.3-5.1. | Apply scientific ideas to solve design problems. |
| LEARNING CONTINUUM | SCI.SEP 6.B.3-5.2. | Generate multiple solutions to a problem and compare how well they meet the criteria and constraints. |

| DOMAIN | WI.SCI. | Science |
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| **CONTENT STANDARD** | **SCI.SEP.** | **Science and Engineering Practices (SEP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.SEP 8.** | **Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP 8.A.** | **Obtain, Evaluate, and Communicate Information – Students evaluate the merit and accuracy of ideas and methods. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP 8.A.3-5.1. | Read and comprehend grade-appropriate complex texts and other reliable media to summarize and obtain scientific and technical ideas, and describe how they are supported by evidence. |
| LEARNING CONTINUUM | SCI.SEP 8.A.3-5.5. | Communicate scientific and technical information orally or in written formats, including various forms of media, which may include tables, diagrams, and charts. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.LS.** | **Disciplinary Core Idea: Life Science (LS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.LS1.** | **Students use science and engineering practices, crosscutting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problem.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.LS1. A.** | **Structure and Function** |
| LEARNING CONTINUUM | SCI.LS1. A.4. | Plants and animals have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.LS.** | **Disciplinary Core Idea: Life Science (LS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.LS4 .** | **Students use science and engineering practices, crosscutting concepts, and an understanding of biological evolution to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.LS4. D.** | **Biodiversity and Humans** |
| LEARNING CONTINUUM | SCI.LS4. D.3. | Populations of organisms live in a variety of habitats. Change in those habitats affects the organisms living there. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.ETS .** | **Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.ETS 1.** | **Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.ETS 1.A.** | **Defining and Delimiting Engineering Problems** |
| LEARNING CONTINUUM | SCI.ETS1 .A.3-5. | Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS1. | Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS1.B. | Developing Possible Solutions |
| LEARNING CONTINUUM | SCI.ETS1.B.3-5.1. | Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. |
| LEARNING CONTINUUM | SCI.ETS1.B.3-5.3. | Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS2. | Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS2.A. | Interdependence of Science, Engineering, and Technology |
| LEARNING CONTINUUM | SCI.ETS2.A.3-5.1. | Science and technology support each other. |
| LEARNING CONTINUUM | SCI.ETS2.A.3-5.2. | Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS2. | Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS2.B. | Influence of Engineering, Technology, and Science on Society and the Natural World |
| LEARNING CONTINUUM | SCI.ETS2.B.3-5.3. | When new technologies become available, they can bring about changes in the way people live and interact with one another. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS3. | Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS3.A. | Science and Engineering Are Human Endeavors |

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| LEARNING CONTINUUM | SCI.ETS3.A.3-5.3. | Science and engineering affect everyday life. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS3. | Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS3.C. | Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems |
| LEARNING CONTINUUM | SCI.ETS3.C.3-5.1. | The products of science and engineering are not developed through one set “scientific method” or “engineering design process.” Instead, they use a variety of approaches described in the Science and Engineering Practices. |
| LEARNING CONTINUUM | SCI.ETS3.C.3-5.3. | There is no perfect design in engineering. Designs that are best in some ways (e.g. safety or ease of use) may be inferior in other ways (e.g. cost or aesthetics). |

**Wisconsin Academic Standards**

**Science**

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

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.CC. | Crosscutting Concepts (CC) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.CC2. | Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | | Cause and Effect |
| LEARNING CONTINUUM | SCI.CC2.3-5. | Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a cause and effect relationship. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.CC. | Crosscutting Concepts (CC) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.CC6. | Students use science and engineering practices, disciplinary core ideas, and an understanding of structure and function to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | | Structure and Function |
| LEARNING CONTINUUM | SCI.CC6.3-5. | Students understand different materials have different substructures, which can sometimes be observed; and substructures have shapes and parts that serve functions. |

| DOMAIN | WI.SCI. | Science |
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| CONTENT STANDARD | SCI.SEP. | Science and Engineering Practices (SEP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.SEP2. | Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems. |

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| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP 2.A.** | **Developing Models – Students build and revise simple models and use models to represent events and design solutions. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP2 .A.3-5.1. | Identify limitations of models. |
| LEARNING CONTINUUM | SCI.SEP2 .A.3-5.5. | Develop a diagram or simple physical prototype to convey a proposed object, tool, or process. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.SEP.** | **Science and Engineering Practices (SEP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.SEP 3.** | **Students plan and carry out investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP 3.A.** | **Planning and Conducting Investigations – Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP3 .A.3-5.2. | Evaluate appropriate methods and tools for collecting data. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.SEP.** | **Science and Engineering Practices (SEP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.SEP 6.** | **Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP 6.A.** | **Construct an Explanation – Students use evidence to construct explanations that specify variables which describe and predict phenomena. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP 6.A.3-5.1. | Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). |
| LEARNING CONTINUUM | SCI.SEP 6.A.3-5.2. | Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation. |
| LEARNING CONTINUUM | SCI.SEP 6.A.3-5.3. | Identify the evidence that supports particular points in an explanation. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.SEP.** | **Science and Engineering Practices (SEP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.SEP 6.** | **Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP 6.B.** | **Design Solutions – Students use evidence to create multiple solutions to design problems. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP 6.B.3-5.1. | Apply scientific ideas to solve design problems. |

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| LEARNING CONTINUUM | SCI.SEP 6.B.3-5.2. | Generate multiple solutions to a problem and compare how well they meet the criteria and constraints. |

| DOMAIN | WI.SCI. | Science |
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| **CONTENT STANDARD** | **SCI.SEP.** | **Science and Engineering Practices (SEP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.SEP 8.** | **Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.SEP 8.A.** | **Obtain, Evaluate, and Communicate Information – Students evaluate the merit and accuracy of ideas and methods. This includes the following:** |
| LEARNING CONTINUUM | SCI.SEP 8.A.3-5.1. | Read and comprehend grade-appropriate complex texts and other reliable media to summarize and obtain scientific and technical ideas, and describe how they are supported by evidence. |
| LEARNING CONTINUUM | SCI.SEP 8.A.3-5.5. | Communicate scientific and technical information orally or in written formats, including various forms of media, which may include tables, diagrams, and charts. |

| DOMAIN | WI.SCI. | Science |
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| **CONTENT STANDARD** | **SCI.LS.** | **Disciplinary Core Idea: Life Science (LS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.LS1.** | **Students use science and engineering practices, crosscutting concepts, and an understanding of structures and processes (on a scale from molecules to organisms) to make sense of phenomena and solve problem.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.LS1. A.** | **Structure and Function** |
| LEARNING CONTINUUM | SCI.LS1. A.4. | Plants and animals have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction. |

| DOMAIN | WI.SCI. | Science |
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| **CONTENT STANDARD** | **SCI.LS.** | **Disciplinary Core Idea: Life Science (LS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.LS4 .** | **Students use science and engineering practices, crosscutting concepts, and an understanding of biological evolution to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.LS4. D.** | **Biodiversity and Humans** |
| LEARNING CONTINUUM | SCI.LS4. D.3. | Populations of organisms live in a variety of habitats. Change in those habitats affects the organisms living there. |

| DOMAIN | WI.SCI. | Science |
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| **CONTENT STANDARD** | **SCI.ETS .** | **Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.ETS 1.** | **Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.ETS 1.A.** | **Defining and Delimiting Engineering Problems** |

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| LEARNING CONTINUUM | SCI.ETS1.A.3-5. | Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. |

| DOMAIN | WI.SCI. | Science |
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| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS1. | Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS1.B. | Developing Possible Solutions |
| LEARNING CONTINUUM | SCI.ETS1.B.3-5.1. | Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. |
| LEARNING CONTINUUM | SCI.ETS1.B.3-5.3. | Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS2. | Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS2.A. | Interdependence of Science, Engineering, and Technology |
| LEARNING CONTINUUM | SCI.ETS2.A.3-5.1. | Science and technology support each other. |
| LEARNING CONTINUUM | SCI.ETS2.A.3-5.2. | Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies. |

| DOMAIN | WI.SCI. | Science |
|---|---|---|
| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | SCI.ETS2. | Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems. |
| DESCRIPTOR / FOCUS AREA | SCI.ETS2.B. | Influence of Engineering, Technology, and Science on Society and the Natural World |
| LEARNING CONTINUUM | SCI.ETS2.B.3-5.3. | When new technologies become available, they can bring about changes in the way people live and interact with one another. |

| DOMAIN | WI.SCI. | Science |
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| CONTENT STANDARD | SCI.ETS. | Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS) |

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| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.ETS 3.** | **Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.ETS 3.A.** | **Science and Engineering Are Human Endeavors** |
| LEARNING CONTINUUM | SCI.ETS3 .A.3-5.3. | Science and engineering affect everyday life. |

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| **DOMAIN** | **WI.SCI.** | **Science** |
| **CONTENT STANDARD** | **SCI.ETS .** | **Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **SCI.ETS 3.** | **Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.** |
| **DESCRIPTOR / FOCUS AREA** | **SCI.ETS 3.C.** | **Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems** |
| LEARNING CONTINUUM | SCI.ETS3 .C.3-5.1. | The products of science and engineering are not developed through one set “scientific method” or “engineering design process.” Instead, they use a variety of approaches described in the Science and Engineering Practices. |
| LEARNING CONTINUUM | SCI.ETS3 .C.3-5.3. | There is no perfect design in engineering. Designs that are best in some ways (e.g. safety or ease of use) may be inferior in other ways (e.g. cost or aesthetics). |

**Wisconsin Academic Standards**

**Technology Education**

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

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP1.** | **Students will recognize and define computational problems using algorithms and programming.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP1. a.** | **Develop algorithms.** |
| LEARNING CONTINUUM | CS.AP1.a .4.i. | Construct and execute algorithms (sets of step-by-step instructions), which include sequencing, loops, and conditionals to accomplish a task, both independently and collaboratively, with or without a computing device. |

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP2.** | **Students will create computational artifacts using algorithms and programming.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP2. a.** | **Develop and implement an artifact.** |
| LEARNING CONTINUUM | CS.AP2.a .3.i. | Construct programs in order to solve a problem or for creative expression, which include sequencing, events, loops, conditionals, parallelism and variables, using a block-based visual programming language or text based language, both independently and collaboratively (e.g., pair programming). |

| DOMAIN | WI.CS. | Computer Science |
|---|---|---|
| CONTENT STANDARD | CS.AP. | Content Area: Algorithms and Programming (AP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | CS.AP3. | Students will communicate about computing ideas. |
| DESCRIPTOR / FOCUS AREA | CS.AP3.b. | Communicate about technical and social issues. |
| LEARNING CONTINUUM | CS.AP3.b.2.i. | Understand that algorithms have impacted society in both beneficial and harmful ways. |
| LEARNING CONTINUUM | CS.AP3.b.3.i. | Compare different problem solving techniques. |

| DOMAIN | WI.CS. | Computer Science |
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| CONTENT STANDARD | CS.AP. | Content Area: Algorithms and Programming (AP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | CS.AP5. | Students will collaborate with diverse teams. |
| DESCRIPTOR / FOCUS AREA | CS.AP5.a. | Work together to solve computational problems using a variety of resources. |
| LEARNING CONTINUUM | CS.AP5.a.4.i. | Understand there are many resources that can be used/tapped to solve a problem. |

| DOMAIN | WI.CS. | Computer Science |
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| CONTENT STANDARD | CS.AP. | Content Area: Algorithms and Programming (AP) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | CS.AP6. | Students will test and refine computational solutions. |
| DESCRIPTOR / FOCUS AREA | CS.AP6.b. | Develop and apply success criteria. |
| LEARNING CONTINUUM | CS.AP6.b.1.i. | Determine the correctness of a computational problem solution by listening to a classmate describe the solution. |

| DOMAIN | WI.CS. | Computer Science |
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| CONTENT STANDARD | CS.CS. | Content Area: Computing Systems (CS) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | CS.CS2. | Students will test and refine computing systems. |
| DESCRIPTOR / FOCUS AREA | CS.CS2.a. | Problem solve and debug. |
| LEARNING CONTINUUM | CS.CS2.a.2.i. | Identify, using accurate terminology, simple hardware and software problems that may occur during use, and apply strategies for solving problems (e.g., reboot device, check for power, check network availability, close and reopen app). |

| DOMAIN | WI.ITL. | Information and Technology Literacy |
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| CONTENT STANDARD | ITL.KC. | Content Area: Knowledge Constructor (KC) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | ITL.KC2. | Students produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others. |
| DESCRIPTOR / FOCUS AREA | ITL.KC2.b. | Build knowledge by actively exploring real-world issues and problems. |
| LEARNING CONTINUUM | ITL.KC2.b.4.i. | Connect learning to age-appropriate real-world issues and problems and begin to develop questions for problem solving. |

| DOMAIN | WI.ITL. | Information and Technology Literacy |
|---|---|---|
| CONTENT STANDARD | ITL.ID. | Content Area: Innovative Designer (ID) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | ITL.ID1. | Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking. |
| DESCRIPTOR / FOCUS AREA | ITL.ID1.a. | Find authentic problems in local and global contexts. |
| LEARNING CONTINUUM | ITL.ID1.a.2.i. | Identify and describe problems or challenges that affect the community. Analyze all conditions that make it a problem. |

| DOMAIN | WI.ITL. | Information and Technology Literacy |
|---|---|---|
| CONTENT STANDARD | ITL.ID. | Content Area: Innovative Designer (ID) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | ITL.ID1. | Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking. |
| DESCRIPTOR / FOCUS AREA | ITL.ID1.b. | Exhibit tolerance for ambiguity, perseverance and the capacity to work with authentic, open-ended problems. |
| LEARNING CONTINUUM | ITL.ID1.b.2.i. | Demonstrate perseverance when working with authentic, open-ended problems. |

| DOMAIN | WI.ITL. | Information and Technology Literacy |
|---|---|---|
| CONTENT STANDARD | ITL.ID. | Content Area: Innovative Designer (ID) |
| PERFORMANCE STANDARD / LEARNING PRIORITY | ITL.ID2. | Students use a variety of technologies within a design process to create new, useful, and imaginative solutions. |
| DESCRIPTOR / FOCUS AREA | ITL.ID2.a. | Know and use a deliberate design process for generating ideas, testing theories, and creating innovative artifacts and solutions. |
| LEARNING CONTINUUM | ITL.ID2.a.2.i. | Explore and practice how a deliberate design process works to generate ideas, considers solutions, plans to solve a problem, and creates innovative products to share with others. |

| DOMAIN | WI.ITL. | Information and Technology Literacy |
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| CONTENT STANDARD | ITL.ID. | Content Area: Innovative Designer (ID) |

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| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.ID2.** | **Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.ID2.c.** | **Develop, test, and refine prototypes as part of a cyclical design process.** |
| LEARNING CONTINUUM | ITL.ID2.c.2.i. | Engage in an iterative process to develop and test prototypes and reflect on the role that trial and error plays in the design process. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.CT.** | **Content Area: Computational Thinker (CT)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.CT1.** | **Students develop and employ strategies for understanding and solving problems.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.CT1.a.** | **Identify, define, and interpret problems where digital tools can assist in finding solutions.** |
| LEARNING CONTINUUM | ITL.CT1.a.2.i. | Identify problems and select appropriate digital tools to analyze and explore solutions. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.CT.** | **Content Area: Computational Thinker (CT)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.CT1.** | **Students develop and employ strategies for understanding and solving problems.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.CT1.b.** | **Collect data, then identify and use digital tools to analyze and represent the data to find solutions.** |
| LEARNING CONTINUUM | ITL.CT1.b.2.i. | Utilize age-appropriate digital tools to collect data, design, code, test and verify possible solutions collect and represent data to discuss results and share conclusions. |

**Wisconsin Academic Standards**

**Technology Education**

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

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP1.** | **Students will recognize and define computational problems using algorithms and programming.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP1.a.** | **Develop algorithms.** |
| LEARNING CONTINUUM | CS.AP1.a.4.i. | Construct and execute algorithms (sets of step-by-step instructions), which include sequencing, loops, and conditionals to accomplish a task, both independently and collaboratively, with or without a computing device. |

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |

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| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP2.** | **Students will create computational artifacts using algorithms and programming.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP2.a.** | **Develop and implement an artifact.** |
| LEARNING CONTINUUM | CS.AP2.a.3.i. | Construct programs in order to solve a problem or for creative expression, which include sequencing, events, loops, conditionals, parallelism and variables, using a block-based visual programming language or text based language, both independently and collaboratively (e.g., pair programming). |

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP3.** | **Students will communicate about computing ideas.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP3.b.** | **Communicate about technical and social issues.** |
| LEARNING CONTINUUM | CS.AP3.b.2.i. | Understand that algorithms have impacted society in both beneficial and harmful ways. |
| LEARNING CONTINUUM | CS.AP3.b.3.i. | Compare different problem solving techniques. |

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP5.** | **Students will collaborate with diverse teams.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP5.a.** | **Work together to solve computational problems using a variety of resources.** |
| LEARNING CONTINUUM | CS.AP5.a.4.i. | Understand there are many resources that can be used/tapped to solve a problem. |

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.AP.** | **Content Area: Algorithms and Programming (AP)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.AP6.** | **Students will test and refine computational solutions.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.AP6.b.** | **Develop and apply success criteria.** |
| LEARNING CONTINUUM | CS.AP6.b.1.i. | Determine the correctness of a computational problem solution by listening to a classmate describe the solution. |

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| **DOMAIN** | **WI.CS.** | **Computer Science** |
| **CONTENT STANDARD** | **CS.CS.** | **Content Area: Computing Systems (CS)** |

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| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **CS.CS2.** | **Students will test and refine computing systems.** |
| **DESCRIPTOR / FOCUS AREA** | **CS.CS2.a.** | **Problem solve and debug.** |
| LEARNING CONTINUUM | CS.CS2.a.2.i. | Identify, using accurate terminology, simple hardware and software problems that may occur during use, and apply strategies for solving problems (e.g., reboot device, check for power, check network availability, close and reopen app). |

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|---|---|---|
| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.KC.** | **Content Area: Knowledge Constructor (KC)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.KC2.** | **Students produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.KC2.b.** | **Build knowledge by actively exploring real-world issues and problems.** |
| LEARNING CONTINUUM | ITL.KC2.b.4.i. | Connect learning to age-appropriate real-world issues and problems and begin to develop questions for problem solving. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.ID.** | **Content Area: Innovative Designer (ID)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.ID1.** | **Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.ID1.a.** | **Find authentic problems in local and global contexts.** |
| LEARNING CONTINUUM | ITL.ID1.a.2.i. | Identify and describe problems or challenges that affect the community. Analyze all conditions that make it a problem. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.ID.** | **Content Area: Innovative Designer (ID)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.ID1.** | **Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.ID1.b.** | **Exhibit tolerance for ambiguity, perseverance and the capacity to work with authentic, open-ended problems.** |
| LEARNING CONTINUUM | ITL.ID1.b.2.i. | Demonstrate perseverance when working with authentic, open-ended problems. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.ID.** | **Content Area: Innovative Designer (ID)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.ID2.** | **Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.** |

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| **DESCRIPTOR / FOCUS AREA** | **ITL.ID2.a.** | **Know and use a deliberate design process for generating ideas, testing theories, and creating innovative artifacts and solutions.** |
| LEARNING CONTINUUM | ITL.ID2.a.2.i. | Explore and practice how a deliberate design process works to generate ideas, considers solutions, plans to solve a problem, and creates innovative products to share with others. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.ID.** | **Content Area: Innovative Designer (ID)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.ID2.** | **Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.ID2.c.** | **Develop, test, and refine prototypes as part of a cyclical design process.** |
| LEARNING CONTINUUM | ITL.ID2.c.2.i. | Engage in an iterative process to develop and test prototypes and reflect on the role that trial and error plays in the design process. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.CT.** | **Content Area: Computational Thinker (CT)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.CT1.** | **Students develop and employ strategies for understanding and solving problems.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.CT1.a.** | **Identify, define, and interpret problems where digital tools can assist in finding solutions.** |
| LEARNING CONTINUUM | ITL.CT1.a.2.i. | Identify problems and select appropriate digital tools to analyze and explore solutions. |

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| **DOMAIN** | **WI.ITL.** | **Information and Technology Literacy** |
| **CONTENT STANDARD** | **ITL.CT.** | **Content Area: Computational Thinker (CT)** |
| **PERFORMANCE STANDARD / LEARNING PRIORITY** | **ITL.CT1.** | **Students develop and employ strategies for understanding and solving problems.** |
| **DESCRIPTOR / FOCUS AREA** | **ITL.CT1.b.** | **Collect data, then identify and use digital tools to analyze and represent the data to find solutions.** |
| LEARNING CONTINUUM | ITL.CT1.b.2.i. | Utilize age-appropriate digital tools to collect data, design, code, test and verify possible solutions collect and represent data to discuss results and share conclusions. |

**Wyoming Content and Performance Standards**

**Mathematics**

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

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| **CONTENT STANDARD** | | **Standards for Mathematical Practices** |
| BENCHMARK | 1 | Make sense of problems and persevere in solving them. |
| BENCHMARK | 2 | Reason abstractly and quantitatively. |

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

**Wyoming Content and Performance Standards**

**Mathematics**

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

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

**Wyoming Content and Performance Standards**

**Science**

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

| CONTENT STANDARD | | LIFE SCIENCE |
|---|---|---|
| **BENCHMARK** | **3-LS4.** | **Biological Evolution: Unity and Diversity** |
| GRADE LEVEL EXAMPLE | 3-LS4-4. | Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. |

| CONTENT STANDARD | | ENGINEERING DESIGN |
|---|---|---|
| **BENCHMARK** | **3-5-ETS1.** | **Engineering, Technology, & Applications of Science** |
| GRADE LEVEL EXAMPLE | 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 EXAMPLE | 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 EXAMPLE | 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. |

**Wyoming Content and Performance Standards**

**Science**

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

| CONTENT STANDARD | | LIFE SCIENCE |
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| **BENCHMARK** | **4-LS1.** | **From Molecules to Organisms: Structure and Processes** |
| GRADE LEVEL EXAMPLE | 4-LS1-1. | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. |
| **CONTENT STANDARD** | | **ENGINEERING DESIGN** |
| **BENCHMARK** | **3-5-ETS1.** | **Engineering, Technology, & Applications of Science** |
| GRADE LEVEL EXAMPLE | 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 EXAMPLE | 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 EXAMPLE | 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. |

**Wyoming Content and Performance Standards**

**Technology Education**

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

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| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **1** | **Fostering an Inclusive Computing Culture** |
| EXPECTATION | 1.1. | "Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products." |
| EXPECTATION | 1.2. | Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability. |
| EXPECTATION | 1.3. | "Employ self- and peer-advocacy to address bias in interactions, product design, and development methods." |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **3** | **Recognizing and Defining Computational Problems** |
| EXPECTATION | 3.2. | Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. |
| EXPECTATION | 3.3. | Evaluate whether it is appropriate and feasible to solve a problem computationally. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **4** | **Developing and Using Abstractions** |

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| EXPECTATION | 4.2. | Evaluate existing technological functionalities and incorporate them into new designs. |
| EXPECTATION | 4.3. | Create modules and develop points of interaction that can apply to multiple situations and reduce complexity. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **5** | **Creating Computational Artifacts** |
| EXPECTATION | 5.1. | Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations. |
| EXPECTATION | 5.2. | Create a computational artifact for practical intent, personal expression, or to address a societal issue. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **6** | **Testing and Refining Computational Artifact** |
| EXPECTATION | 6.1. | Systematically test computational artifacts by considering all scenarios and using test cases. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **3-5 Computer Science Standards** |
| **GRADE LEVEL EXAMPLE** | **AP.A.** | **Algorithms** |
| EXPECTATION | 5.AP.A.01. | Using grade appropriate content and complexity, compare and refine multiple algorithms for the same task and determine which is the most appropriate. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **3-5 Computer Science Standards** |
| **GRADE LEVEL EXAMPLE** | **AP.M.** | **Modularity** |
| EXPECTATION | 5.AP.M.01. | Using grade appropriate content and complexity, decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **3-5 Computer Science Standards** |
| **GRADE LEVEL EXAMPLE** | **AP.PD.** | **Program Development** |
| EXPECTATION | 5.AP.PD.03. | Using grade appropriate content and complexity, test and debug (i.e., identify and fix errors) a program or algorithm to ensure it runs as intended. |

**Technology Education**

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

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| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **1** | **Fostering an Inclusive Computing Culture** |
| EXPECTATION | 1.1. | "Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products." |
| EXPECTATION | 1.2. | Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability. |
| EXPECTATION | 1.3. | "Employ self- and peer-advocacy to address bias in interactions, product design, and development methods." |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **3** | **Recognizing and Defining Computational Problems** |
| EXPECTATION | 3.2. | Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. |
| EXPECTATION | 3.3. | Evaluate whether it is appropriate and feasible to solve a problem computationally. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **4** | **Developing and Using Abstractions** |
| EXPECTATION | 4.2. | Evaluate existing technological functionalities and incorporate them into new designs. |
| EXPECTATION | 4.3. | Create modules and develop points of interaction that can apply to multiple situations and reduce complexity. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **5** | **Creating Computational Artifacts** |
| EXPECTATION | 5.1. | Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations. |
| EXPECTATION | 5.2. | Create a computational artifact for practical intent, personal expression, or to address a societal issue. |
| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |

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| **BENCHMARK** | | **Computer Science Practices** |
| **GRADE LEVEL EXAMPLE** | **6** | **Testing and Refining Computational Artifact** |
| EXPECTATION | 6.1. | Systematically test computational artifacts by considering all scenarios and using test cases. |

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| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **3-5 Computer Science Standards** |
| **GRADE LEVEL EXAMPLE** | **AP.A.** | **Algorithms** |
| EXPECTATION | 5.AP.A.01. | Using grade appropriate content and complexity, compare and refine multiple algorithms for the same task and determine which is the most appropriate. |

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| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **3-5 Computer Science Standards** |
| **GRADE LEVEL EXAMPLE** | **AP.M.** | **Modularity** |
| EXPECTATION | 5.AP.M.01. | Using grade appropriate content and complexity, decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. |

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| **CONTENT STANDARD** | | **Wyoming Computer Science Content Standards** |
| **BENCHMARK** | | **3-5 Computer Science Standards** |
| **GRADE LEVEL EXAMPLE** | **AP.PD.** | **Program Development** |
| EXPECTATION | 5.AP.PD.03. | Using grade appropriate content and complexity, test and debug (i.e., identify and fix errors) a program or algorithm to ensure it runs as intended. |