# DoD STARBASE NM Activities
# Aligned with Common Core, NGSS, & National Technology Standards

| | Engineering: EDP & Eggbert | Math: Number Relationships: Budget Math | Math: Eggbert Data Analysis and Basic Graphing | Engineering: Onshape Scavenger Hunt | Physics: Intro to Motion and Forces | Physics: Newton's Laws of Motion Activities | Physics: CO2 Rocket Dragsters | Math: Basic Geometry: What's Up Dock | Science Fundamentals: Energy Exploration Intro | Science Explorations: Intro to Circuitry | Science Explorations: littleBits of Energy | Engineering: Onshape Gyrosphere | Technology: Intro to Robotics/Robotics Challenge | Math: Basic Measurement: Liquid Volume | Math: Engineering Measurement Training | Science Fundamentals: Molecular Models | Science Fundamentals: States of Matter | Science Fundamentals: Phys/Chem Changes Intro | Science Fundamentals: Double Bubble Trouble | STEM: Careers: AFRL Applications | Science: Characteristic Properties: Chromatography | Math: Atmospheric Ratios | Engineering: Onshape Mars Base | Science: Intro to Fluid Mechanics | Science: Fluid Dynamics and Characteristics | Science: Fluid Mechanics: Bernoulli's Principle | STEM: Careers and Personal Investigations | Technology: Intro to Simulation |
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| | Day 1 | | | | Day 2 | | | | | | | Day 3 | | | | Day 4 | | | | | | | Day 5 | | | | | |
| **Common Core Standards for English Language Arts (Grade 5)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Reading Standards for Informational Text** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Craft and Structure** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.RI.5.5 Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. | x | x | x | | | x | x | | x | x | x | | x | x | x | x | | x | | x | | | | | x | x | x | |
| • **Range of Reading and Level of Text Complexity** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.RI.5.5 By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently. | | | | x | | | | | | | x | x | x | x | x | x | | | x | | x | | x | | x | | | |
| **Reading Standards: Foundational Skills** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Phonics and Word Recognition** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.RF.5.3 Know and apply grade-level phonics and word analysis skills in decoding words. | | | | x | | | | x | | | x | x | x | x | x | x | | | x | | x | | x | | x | | | |
| CCSS.ELA-Literacy.RF.5.3.a Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context. | | | | x | | | | x | | | x | x | | x | x | x | | | x | | x | | x | | x | | | |
| • **Fluency** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.RF.5.4 Read with sufficient accuracy and fluency to support comprehension. | | | | x | | | | | | | x | x | x | x | x | x | | | x | | x | | x | | x | | | |
| CCSS.ELA-Literacy.RF.5.4.a. Read on-level text with purpose and understanding. | | | | x | | x | | | | | x | x | x | x | x | x | | | x | | x | | x | | x | | | |
| **Writing Standards** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Range of Writing** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.W.5.1 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. | x | | | | x | x | x | | | | x | | | | | | | | x | | x | | | | x | | | |
| **Speaking and Listening Standards** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Comprehension and Collaboration** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-lead) with diverse partners on *grade 5 topics and texts* , building on others' ideas and expressing their own clearly. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| CCSS.ELA-Literacy.SL.5.1.b. Follow agreed-upon rules for discussions and carry out assigned roles. | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| CCSS.ELA-Literacy.SL.5.1.c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. | x | x | x | | | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x |
| CCSS.ELA-Literacy.SL.5.1.d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions. | x | x | x | | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| • **Presentation of Knowledge and Ideas** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.SL.5.4 Report on a topic or text or present an opinion sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace. | | x | x | | x | x | x | x | | | x | | x | | | | | x | x | | x | | | | x | | | |
| **Language Standards** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Vocabulary Acquisition and Use** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCSS.ELA-Literacy.L.5.4 Determine or clarify the meaning of unknown and multiple-meaning words, and phrases based on *grade 5 reading and content* , choosing flexibly from a range of strategies. | x | | | x | x | | | | | | x | | x | | | x | x | x | x | x | | | x | x | x | x | x | x |
| CCSS.ELA-Literacy.L.5.4.b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph, photosynthesis* ). | | | | | | | | | | | | | | | | x | x | x | | x | x | | | | | | x | |

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| **Common Core Standards for Mathematics (Grade 5)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Mathematical Practices** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | Make sense of problems and persevere in solving them. | x | x | x | x | x | x | | x | | | x | x | x | x | x | | | | x | | x | x | x | | x | x | x | x |
| 2. | Reason abstractly and quantitatively. | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x |
| 3. | Construct viable argument and critique the reasoning of others. | x | x | x | | | x | x | x | | | x | | x | x | x | | | x | x | x | x | x | | | x | x | x | x | |
| 5. | Use appropriate tools strategically. | x | x | | x | | x | x | x | | | x | x | x | x | x | x | x | | | | | x | | x | | x | x | x | x |
| 6. | Attend to precision. | x | x | x | | | | x | x | | | x | x | x | x | x | x | | | | | | x | x | x | | x | x | x | x |
| 7. | Look for and make use of structure. | | x | | x | x | x | | x | x | | x | | x | x | x | x | | | | | | x | | x | x | x | x | |
| 8. | Look for and express regularity in repeated reasoning. | | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | | | | | x | x | x | x | x | x | x | x | |
| **Number and Operations in Base Ten** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ◆ **Understand the place value system.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CCSS.Math.Content.5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. | | x | x | | | | | x | | | | | | x | x | | | | | | | | x | | | | | |
| | CCSS.Math.Content.5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. | | x | x | | | | | x | | | | | | x | x | | | | | | | | x | | | | | |
| | CCSS.Math.Content.5.NBT.A.4 Use place value understanding to round decimals to any place. | | x | x | | | | | x | | | | | | x | x | | | | | | | | x | | | | | |
| ◆ **Perform operations with multi-digit whole numbers and with decimals to hundredths.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CCSS.Math.Content.5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays and/or area models. | | x | | | | | | x | | | | | | | | | | | | | | | x | | | | | |
| | CCSS.Math.Content.5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. | x | x | x | | | | | x | | | | | | x | x | | | | | | | | x | | | | | |
| **Number and Operations - Fractions** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ◆ **Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CCSS.Math.Content.5.NF.B.3 Interpret a fraction as division of the numerator by the denominator (a/b = a ¸ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, nothing that 3/4 multiplied by 4 equals 3, and that when 3 wholes are share equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?* | | x | | | | | | x | | | | | | | x | | | | | | | | x | | | | | |
| | CCSS.Math.Content.5.NF.B.5.a. Interpret multiplication as scaling (resizing) by comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. | | | | x | | | | x | | | | x | | | x | | | | | | | | x | | | | | |
| **Measurement and Data** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ◆ **Convert like measurements units within a given measurement system.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CCSS.Math.Content.5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multistep, real world problems. | | | | | | | | x | | | | | x | x | x | | | | | | | | x | | | | | |

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| • | **Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CCSS.Math.Content.5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. | | | | X | | | | X | | | | X | | X | X | | X | X | X | | | | X | | | | |
| | CCSS.Math.Content.5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. | | | | | | | | | | | | X | | X | X | | | | | | | | X | | | | |
| **Geometry** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | **Graph points on the coordinate plane to solve real-world and mathematical problems.** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CCSS.Math.Content.5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). | | | | | | | | | | | | | X | | | | | | | | | | | | | | X |
| **Next Generation Science Standards (Grade 5)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Physical Science** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **5-PS1** | **Matter and Its Interactions** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1. Develop a model to describe that matter is made of particles too small to be seen. | | | | | | | | | | | | | | | | X | X | X | | | | X | | | X | X | |
| | 3. Make observations and measurements to identify materials based on their properties. | | | | | | | | | X | X | X | | | | | | X | X | X | X | X | X | | X | X | X | |
| | 4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances. | | | | | | | | | | | | | | | | X | X | X | X | X | X | | | | | | |
| **5-PS2** | **Motion and Stability: Forces and Interactions** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1. Support an argument that the gravitational force exerted by Earth on objects is directed down. | X | | X | | X | X | | | X | | | | | | | | X | | | | | | | | X | X | X |
| **Earth and Space Sciences** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **5-ESS3** | **Earth and Human Activity** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. | | | | | | | | | X | | | | X | | | X | | | | X | | X | X | | | | |
| **Engineering, Technology, and Applications of Science** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **3-5-ETS1** | **Engineering Design** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 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. | X | X | X | | | | X | X | | X | X | X | X | | | X | | | | | | | X | | | X | |
| | 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. | X | X | X | | | | | X | X | | X | | X | X | X | | | | | | X | X | X | | | X | X | |
| | 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. | X | X | X | | | | X | X | | | X | X | X | | | | | | | | | | X | | | X | |
| **NM STEM Ready Science Standards (New Mexico Specific Standards)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **5-SSNM** | **Science and Society New Mexico** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1. Communicate information gathered from books, reliable media, or outside sources, that describes how a variety of scientists and engineers across New Mexico have improved existing technologies, developed new ones, or improved society through applications of science. | X | | | | | | | | | | | | | | | | | | | X | | | | | | X | |
| **Next Generation Science Standards Cross Cutting Concepts (Grades 3-5)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Patterns:** Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products. | X | X | X | | X | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | | X | X | X | X | X |
| • | Patterns of change can be used to make predictions. | X | X | X | | X | X | X | | X | X | X | | X | X | X | | X | X | X | X | X | | | X | X | X | | X |
| • | Patterns can be used as evidence to support an explanation. | X | X | X | | X | X | X | X | X | X | X | | X | X | X | | X | X | X | X | X | X | | X | X | X | X | X |

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| **Cause and Effect: Mechanism and Prediction:** Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | Cause and effect relationships are routinely identified, tested, and used to explain change. | x | x | x | | x | x | x | | x | x | x | | x | | | | x | x | x | x | x | | | | x | x | x | |
| • | Events that occur together with regularity might or might not be a cause and effect relationship. | x | x | x | | x | x | x | | x | x | x | | x | | | | x | x | x | x | x | | | x | x | x | x | |
| **Scale, Proportion, and Quantity**: In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods. | x | | x | | x | x | x | | x | | x | | x | | | x | x | x | x | x | | | | x | x | x | x | |
| • | Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. | x | | x | | x | x | x | x | | | | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | |
| **Systems and System Models:** A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. | x | | x | x | x | x | x | | x | x | x | x | x | | | x | x | x | x | | x | x | x | | | | | x |
| • | A system can be described in terms of its components and their interactions. | x | | x | x | x | x | x | | x | x | x | x | x | | | x | x | x | x | | x | x | x | | | | | x |
| **Energy and Matter:** Flows, Cycles, and Conservation: Tracking energy and matter flows, into, out of, and within systems helps one understand their system's behavior. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | Matter is made of particles. | | | | | | | | | | | x | | | | | x | x | x | x | x | x | | | x | x | x | x | |
| • | Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems. | | | | | | | | | | | | | | | | | x | x | x | x | x | | | | x | x | x | |
| • | Energy can be transferred in various ways and between objects. | x | | | | x | | x | | x | x | x | | | | | x | x | x | x | x | | | | | | x | x | |
| **Structure and Function:** The way an object is shaped or structured determines many of its properties and functions. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | Different materials have different substructures, which can sometimes be observed. | | | | x | | | | | x | x | x | x | x | | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| • | Substructures have shapes and parts that serve functions. | x | | | x | | | | | | x | x | x | x | | | x | x | x | x | | x | | x | x | x | x | x | x |
| **Stability and Change:** For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | Change is measured in terms of differences over time and may occur at different rates. | | | | | | | x | | x | x | x | | x | | | | x | x | x | x | x | | | | x | x | x | |
| **Next Generation Science Standards Science and Engineering Practices** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | Asking Questions and Defining Problems | x | x | x | x | | x | x | x | x | | x | x | x | x | x | | | x | x | x | x | x | x | x | x | x | x | x |
| 2. | Developing and Using Models | x | x | x | x | x | x | x | x | | | x | x | x | x | x | x | | x | x | | | x | x | x | x | x | x | x | x |
| 3. | Planning and Carrying Out Investigations | x | x | x | x | x | x | x | x | | | x | | x | x | x | | | x | x | x | x | x | | | x | x | x | |
| 4. | Analyzing and Interpreting Data | x | x | x | | x | x | x | x | x | x | | | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | |
| 5. | Using Mathematics and Computational Thinking | | x | x | | | | x | x | x | x | | x | x | x | x | x | | | x | x | | x | x | x | | x | x | x | x |
| 6. | Constructing Explanations and Designing Solutions | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | | | x | x | x | x | | x | | x | x | x | |
| 7. | Engaging in Argument from Evidence | x | x | x | | x | x | x | x | x | | x | | x | x | x | | x | x | x | x | x | x | | | x | x | x | |
| 8. | Obtaining, Evaluating, and Communicating Information | x | x | x | | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | | | x | x | x | |

# DoD STARBASE NM Activities
# Aligned with Common Core, NGSS, & National Technology Standards

| | | | Engineering: EDP & Eggbert | Math: Number Relationships: Budget Math | Math: Eggbert Data Analysis and Basic Graphing | Engineering: Onshape Scavenger Hunt | Physics: Intro to Motion and Forces | Physics: Newton's Laws of Motion Activities | Physics: CO2 Rocket Dragsters | Math: Basic Geometry: What's Up Dock | Science Fundamentals: Energy Exploration Intro | Science Explorations: Intro to Circuitry | Science Explorations: littleBits of Energy | Engineering: Onshape Gyrosphere | Technology: Intro to Robotics/Robotics Challenge | Math: Basic Measurement: Liquid Volume | Math: Engineering Measurement Training | Science Fundamentals: Molecular Models | Science Fundamentals: States of Matter | Science Fundamentals: Phys/Chem Changes Intro | Science Fundamentals: Double Bubble Trouble | STEM: Careers: AFRL Applications | Science: Characteristic Properties: Chromatography | Math: Atmospheric Ratios | Engineering: Onshape Mars Base | Science: Intro to Fluid Mechanics | Science: Fluid Dynamics and Characteristics | Science: Fluid Mechanics: Bernoulli's Principle | STEM: Careers and Personal Investigations | Technology: Intro to Simulation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Day 1 | | | | Day 2 | | | | | | | Day 3 | | | | | Day 4 | | | | | | | Day 5 | | | | | |
| **National Educational Technology Standards (ISTE)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Empowered Learner** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1c | Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. | x | x | x | x | x | | x | | | | x | x | x | | | | x | x | | x | | x | | x | x | x | x |
| | 1d | Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies. | x | | | x | | | | | | | x | x | x | | | | x | x | | | | x | | x | x | x | x |
| **Digital Citizen** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2b | Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices. | | | | x | | | | | | | x | x | x | | | | x | x | | | | x | | x | x | x | x |
| • **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.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3c | Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions. | | | | x | | | | | x | x | x | x | x | | | | | x | | | | x | x | x | x | x | x |
| | 3d | Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x |
| **Innovative Designer** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4a | Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. | x | x | x | x | x | x | | x | | | x | x | x | x | x | x | | | x | | x | | x | | x | x | x | |
| | 4b | Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. | x | x | | x | | | | | | | x | x | x | | | | | | x | | | | x | | | | x | |
| | 4c | Students develop, test and refine prototypes as part of a cyclical design process. | x | x | x | x | | | | | | | x | x | x | | | | | | | | | | x | | | | x | |
| | 4d | Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems. | x | x | x | x | | | | | | | x | x | x | | | | | | | | x | | x | | | | | |
| **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.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5a | Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions. | x | x | x | | | | | | | | x | | x | | | | | | | | | | x | | | | x | x |
| | 5c | Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving. | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | | | | | | x | x | | | | x | x |
| | 5d | Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. | | | | x | | | | | | x | x | x | x | | | | | | | | | | x | | | | x | x |
| **Creative Communicator** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6c | Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations. | x | x | x | x | x | x | x | x | | | x | x | x | x | x | x | x | | x | x | | x | x | x | | x | x | x |
| **Global Collaborator** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • **Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7a | Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning. | | | | x | | | x | | | | x | x | x | | | x | | | x | | | | x | | x | | x | x |
| | 7d | Students explore local and global issues and use collaborative technologies to work with others to investigate solutions. | | | | x | | | | | | | x | x | x | | | x | | | x | x | x | | x | | | | x | x |