



**Wonder League Robotics Competition 2020-2021
Standards Correlations**

Common Core ELA and Math

ISTE

NGSS

CSTA

[WLRC Standards: Ages 6–8](#)

[WLRC Standards: Ages 9–11](#)

[WLRC Standards: Ages 12-14](#)

Ages 6–8

Common Core ELA and Math

Common Core ELA

Kindergarten

Speaking and Listening

CCSS.ELA-Literacy.SL.K.1: Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL.K.4: Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.

CCSS.ELA-LITERACY.SL.K.5: Add drawings or other visual displays to descriptions as desired to provide additional detail.

CCSS.ELA-LITERACY.SL.K.6: Speak audibly and express thoughts, feelings, and ideas clearly.

Reading: Informational

CCSS.ELA-LITERACY.RI.K.1: With prompting and support, ask and answer questions about key details in a text.

CCSS.ELA-Literacy.RI.K.10: Actively engage in group reading activities with purpose and understanding.

Writing

CCSS.ELA-LITERACY.W.K.3: Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.

CCSS.ELA-LITERACY.W.K.6: With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.

CCSS.ELA-Literacy.W.K.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Grade 1

Speaking and Listening

CCSS.ELA-Literacy.SL.1.1: Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

CCSS.ELA-LITERACY.SL.1.5: Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.

CCSS.ELA-LITERACY.SL.1.6: Produce complete sentences when appropriate to task and situation.

Reading: Informational

CCSS.ELA-LITERACY.RI.1.1: Ask and answer questions about key details in a text.

CCSS.ELA-LITERACY.RI.1.5: Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

CCSS.ELA-LITERACY.RI.1.6: Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

CCSS.ELA-Literacy.RI.1.10: With prompting and support, read informational texts appropriately complex for grade 1.

Writing

CCSS.ELA-LITERACY.W.1.3: Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.

CCSS.ELA-LITERACY.W.1.6: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

CCSS.ELA-Literacy.W.1.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Grade 2

Speaking and Listening

CCSS.ELA-Literacy.SL.2.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL.2.4: Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

CCSS.ELA-LITERACY.SL.2.5: Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.

CCSS.ELA-LITERACY.SL.2.6: Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Reading: Informational

CCSS.ELA-LITERACY.RI.2.5: Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

CCSS.ELA-Literacy.RI.2.10: By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Writing

CCSS.ELA-LITERACY.W.2.3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

CCSS.ELA-LITERACY.W.2.6: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

CCSS.ELA-Literacy.W.2.8: Recall information from experiences or gather information from provided sources to answer a question.

Common Core Math

Kindergarten

Counting and Cardinality

CCSS.Math.Content.K.CC.A.2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

CCSS.MATH.CONTENT.K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.

Grade 1

Measurement and Data

CCSS.MATH.CONTENT.1.MD.A.2: Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

Grade 2

Measurement and Data

	<p>CCSS.Math.Content.2.MD.A.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p>CCSS.MATH.CONTENT.2.MD.A.3: Estimate lengths using units of inches, feet, centimeters, and meters.</p>
<p>ISTE</p>	<p>ISTE Standards for Students</p> <p>Standard 1- Empowered Learner</p> <p>1a: Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.</p> <p>1b: Students build networks and customize their learning environments in ways that support the learning process</p> <p>1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.</p> <p>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.</p> <p>Standard 2- Digital Citizen</p> <p>2b: Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.</p> <p>Standard 3- Knowledge Constructor</p> <p>3a: Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</p> <p>Standard 4- Innovative Designer</p> <p>4a: Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.</p> <p>4b: Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.</p> <p>4c: Students develop, test and refine prototypes as part of a cyclical design process.</p> <p>4d: Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.</p> <p>Standard 5- Computational Thinker</p> <p>5c: Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.</p>

	<p>5d: Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.</p> <p>Standard 6- Creative Communicator</p> <p>6a: Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.</p> <p>6b: Students create original works or responsibly repurpose or remix digital resources into new creations.</p> <p>6c: Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.</p> <p>6d: Students publish or present content that customizes the message and medium for their intended audiences.</p> <p>Standard 7- Global Collaborator</p> <p>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.</p> <p>7b: Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.</p> <p>7c: Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.</p>
<p>NGSS</p>	<p>NGSS Next Generation Science Standards</p> <p>Science and Engineering Practices</p> <p>ETS1.A: Defining and Delimiting Engineering Problems: Asking questions, making observations, and gathering information are helpful in thinking about problems. / Before beginning to design a solution, it is important to clearly understand the problem.</p> <p>ETS1.B: Developing Possible Solutions: Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people.</p> <p>ETS1.C: Optimizing the Design Solution: Because there is always more than one possible solution to a problem, it is useful to compare and test designs.</p> <p>K-2 Engineering Design</p> <p>K-2-ETS1-2 Engineering Design: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p> <p>K-2-ETS1-3 Engineering Design: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>

	<p>Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive. K-ESS3-1 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. Interdependent Relationships in Ecosystems 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.</p>
CSTA Standards: Mission Breakdown	
Mission I (Ages 6–8)	<p>CSTA Computer Science Teacher Association Standards</p> <p>Computing Systems 1A-CS-01: Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use. 1A-CS-03: Describe basic hardware and software problems using accurate terminology.</p> <p>Data Analysis 1A-DA-05: Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.</p> <p>Algorithms and Programming 1A-AP-08: Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks. 1A-AP-09: Model the way programs store and manipulate data by using numbers or other symbols to represent information. 1A-AP-10: Develop programs with sequences and simple loops, to express ideas or address a problem. 1A-AP-11: Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. 1A-AP-12: Develop plans that describe a program’s sequence of events, goals, and expected outcomes. 1A-AP-14: Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops. 1A-AP-15: Using correct terminology, describe steps taken and choices made during the iterative process of program development.</p>

	<p>1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.</p> <p>1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.</p> <p>Impacts of Computing</p> <p>1A-IC-17: Work respectfully and responsibly with others online.</p> <p>1A-IC-18: Keep login information private, and log off of devices appropriately.</p>
<p>Mission II (Ages 6–8)</p>	<p>CSTA Computer Science Teacher Association Standards</p> <p>Computing Systems</p> <p>1A-CS-01: Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.</p> <p>1A-CS-03: Describe basic hardware and software problems using accurate terminology.</p> <p>Data Analysis</p> <p>1A-DA-05: Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.</p> <p>Algorithms and Programming</p> <p>1A-AP-08: Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.</p> <p>1A-AP-09: Model the way programs store and manipulate data by using numbers or other symbols to represent information.</p> <p>1A-AP-10: Develop programs with sequences and simple loops, to express ideas or address a problem.</p> <p>1A-AP-11: Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.</p> <p>1A-AP-12: Develop plans that describe a program’s sequence of events, goals, and expected outcomes.</p> <p>1A-AP-14: Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.</p> <p>1A-AP-15: Using correct terminology, describe steps taken and choices made during the iterative process of program development.</p> <p>1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.</p>

	<p>1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.</p> <p>Impacts of Computing</p> <p>1A-IC-17: Work respectfully and responsibly with others online.</p> <p>1A-IC-18: Keep login information private, and log off of devices appropriately.</p>
<p>Mission III (Ages 6–8)</p>	<p>CSTA Computer Science Teachers Association Standards</p> <p>Computing Systems</p> <p>1A-CS-01: Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.</p> <p>1A-CS-03: Describe basic hardware and software problems using accurate terminology.</p> <p>Data Analysis</p> <p>1A-DA-05: Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.</p> <p>Algorithms and Programming</p> <p>1A-AP-08: Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.</p> <p>1A-AP-09: Model the way programs store and manipulate data by using numbers or other symbols to represent information.</p> <p>1A-AP-10: Develop programs with sequences and simple loops, to express ideas or address a problem.</p> <p>1A-AP-11: Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.</p> <p>1A-AP-12: Develop plans that describe a program’s sequence of events, goals, and expected outcomes.</p> <p>1A-AP-14: Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.</p> <p>1A-AP-15: Using correct terminology, describe steps taken and choices made during the iterative process of program development.</p> <p>1B-AP-10: Create programs that include sequences, events, loops, and conditionals.</p> <p>1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.</p> <p>1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.</p>

Impacts of Computing

1A-IC-17: Work respectfully and responsibly with others online.

1A-IC-18: Keep login information private, and log off of devices appropriately.

**Mission IV
(Ages 6–8)****CSTA Computer Science Teachers Association Standards****Computing Systems**

1A-CS-01: Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.

1A-CS-03: Describe basic hardware and software problems using accurate terminology.

Data Analysis

1A-DA-05: Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.

Algorithms and Programming

1A-AP-08: Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.

1A-AP-09: Model the way programs store and manipulate data by using numbers or other symbols to represent information.

1A-AP-10: Develop programs with sequences and simple loops, to express ideas or address a problem.

1A-AP-11: Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.

1A-AP-12: Develop plans that describe a program's sequence of events, goals, and expected outcomes.

1A-AP-14: Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.

1A-AP-15: Using correct terminology, describe steps taken and choices made during the iterative process of program development.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Computing

1A-IC-17: Work respectfully and responsibly with others online.

1A-IC-18: Keep login information private, and log off of devices appropriately.

**Mission V:
(Ages 6–8)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1A-CS-01: Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.

1A-CS-03: Describe basic hardware and software problems using accurate terminology.

Data Analysis

1A-DA-05: Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.

Algorithms and Programming

1A-AP-08: Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.

1A-AP-09: Model the way programs store and manipulate data by using numbers or other symbols to represent information.

1A-AP-10: Develop programs with sequences and simple loops, to express ideas or address a problem.

1A-AP-11: Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.

1A-AP-12: Develop plans that describe a program’s sequence of events, goals, and expected outcomes.

1A-AP-14: Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.

1A-AP-15: Using correct terminology, describe steps taken and choices made during the iterative process of program development.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Computing

1A-IC-17: Work respectfully and responsibly with others online.

1A-IC-18: Keep login information private, and log off of devices appropriately.

WLRC Standards: Ages 9–11

Common Core ELA and Math

Common Core ELA

Grade 3

Speaking and Listening

CCSS.ELA-Literacy.SL.3.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3* topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.3.4: Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

CCSS.ELA-LITERACY.SL.3.6: Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Reading: Informational

CCSS.ELA-Literacy.RI.3.10: 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 2-3 text complexity band independently and proficiently.

Writing

CCSS.ELA-Literacy.W.3.2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.3.3: Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

CCSS.ELA-LITERACY.W.3.4: With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.

CCSS.ELA-LITERACY.W.3.6: With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.

CCSS.ELA-LITERACY.W.3.8: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

CCSS.ELA-LITERACY.W.3.10: 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.

Grade 4

Speaking and Listening

CCSS.ELA-Literacy.SL.4.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4* topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.4.4: Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

CCSS.ELA-LITERACY.SL.4.5: Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

Reading: Informational

CCSS.ELA-Literacy.RI.4.10: By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Writing

CCSS.ELA-Literacy.W.4.2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.4.3: Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

CCSS.ELA-LITERACY.W.4.4: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.W.4.6: With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.

CCSS.ELA-LITERACY.W.4.8: Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

CCSS.ELA-LITERACY.W.4.10: 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.

Grade 5

Speaking and Listening

CCSS.ELA-Literacy.SL.5.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5* topics and texts, building on others' ideas and expressing their own clearly.

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.

CCSS.ELA-LITERACY.SL.5.5: Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

Reading: Informational

CCSS.ELA-Literacy.RI.5.10: 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.

Writing

CCSS.ELA-Literacy.W.5.2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.5.3: Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

CCSS.ELA-LITERACY.W.5.4: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.W.5.6: With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

CCSS.ELA-LITERACY.W.5.8: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.

CCSS.ELA-LITERACY.W.5.10: 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.

Common Core Math

Grade 3

Measurement and Data

CCSS.MATH.CONTENT.3.MD.C.5: Recognize area as an attribute of plane figures and understand concepts of area measurement.

CCSS.MATH.CONTENT.3.MD.C.6: Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

Grade 4

Operations and Algebraic Thinking

CCSS.MATH.CONTENT.4.OA.C.5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

Measurement and Data

CCSS.Math.Content.4.MD.C.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement

CCSS.Math.Content.4.MD.C.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

CCSS.Math.Content.4.MD.C.7: Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Grade 5

Geometry

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).

CCSS.MATH.CONTENT.5.G.A.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the

	situation.
ISTE	<p>ISTE Standards for Students</p> <p>Standard 1- Empowered Learner</p> <p>1a: Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.</p> <p>1b: Students build networks and customize their learning environments in ways that support the learning process</p> <p>1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.</p> <p>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.</p> <p>Standard 2- Digital Citizen</p> <p>2b: Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.</p> <p>Standard 3- Knowledge Constructor</p> <p>3a: Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.</p> <p>Standard 4- Innovative Designer</p> <p>4a: Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.</p> <p>4b: Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.</p> <p>4c: Students develop, test and refine prototypes as part of a cyclical design process.</p> <p>4d: Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.</p> <p>Standard 5- Computational Thinker</p> <p>5c: Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.</p> <p>5d: Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.</p>

	<p>Standard 6- Creative Communicator</p> <p>6a: Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.</p> <p>6b: Students create original works or responsibly repurpose or remix digital resources into new creations.</p> <p>6c: Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.</p> <p>6d: Students publish or present content that customizes the message and medium for their intended audiences.</p> <p>Standard 7- Global Collaborator</p> <p>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.</p> <p>7b: Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.</p> <p>7c: Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.</p>
<p>NGSS</p>	<p>Next Generation Science Standards Science and Engineering Practices</p> <p>ETS1.A: Defining and Delimiting Engineering Problems: 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.</p> <p>ETS1.B: Developing Possible Solutions: At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. / Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. / Testing a solution involves investigating how well it performs under a range of likely conditions.</p> <p>ETS1.C: Optimizing the Design Solution: Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.</p> <p>3-5 Engineering Design</p> <p>3-5-ETS1-2 Engineering Design: Generate and compare multiple possible solutions to a problem based on</p>

	<p>how well each is likely to meet the criteria and constraints of the problem.</p> <p>3-5-ETS1-3 Engineering Design: 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.</p> <p>Biological Evolution: Unity and Diversity</p> <p>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</p> <p>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</p> <p>When the environment changes in ways that affect a place’s physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.</p> <p>LS4.D: Biodiversity and Humans</p> <p>Populations live in a variety of habitats, and change in those habitats affects the organisms living there.</p> <p>Ecosystems: Interactions, Energy, Dynamics</p> <p>5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.</p>
<p>CSTA Standards: Mission Breakdown</p>	
<p>Mission I (Ages 9–11)</p>	<p>CSTA Computer Science Teachers Association Standards</p> <p>Computing Systems</p> <p>1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.</p> <p>Data Analysis</p> <p>1B-DA-07: Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.</p> <p>Algorithms and Programming</p> <p>1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.</p> <p>1B-AP-10: Create programs that include sequences, events, loops, and conditionals.</p> <p>1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.</p>

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Coding

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission II
(Ages 9–11)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

Data Analysis

1B-DA-07: Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

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.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Coding

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission III
(Ages 9–11)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

Data Analysis

1B-DA-07: Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

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1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Coding

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission IV
(Ages 9–11)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

Data Analysis

1B-DA-07: Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

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1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Coding

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission V
(Ages 9–11)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

Data Analysis

1B-DA-07: Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

Impacts of Coding

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

WLRC Standards: Ages 12-14

Common Core
ELA and Math

Common Core- ELA

Grade 6

Speaking and Listening

CCSS.ELA-Literacy.SL.6.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6-8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.6.5: Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

Writing

CCSS.ELA-Literacy.W.6.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-LITERACY.W.6.3: Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

CCSS.ELA-LITERACY.W.6.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-Literacy.W.6.6: Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.

CCSS.ELA-LITERACY.W.6.10: 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.

Chapter 7

Speaking and Listening

CCSS.ELA-Literacy.SL.7.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6-8 topics, texts, and issues, building on others' ideas and

expressing their own clearly.

Writing

CCSS.ELA-Literacy.W.7.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-LITERACY.W.7.3: Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

CCSS.ELA-LITERACY.W.7.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-Literacy.W.7.6: Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

CCSS.ELA-LITERACY.W.7.10: 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.

Grade 8

Speaking and Listening

CCSS.ELA-Literacy.SL.8.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6-8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.8.5: Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Writing

CCSS.ELA-Literacy.W.8.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-LITERACY.W.8.3: Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

CCSS.ELA-LITERACY.W.8.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-Literacy.W.8.6: Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.

CCSS.ELA-LITERACY.W.8.10: 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,

	<p>purposes, and audiences.</p> <p>Grade 6-8 Reading: Science and Technical Subjects CCSS.ELA-LITERACY.RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. CCSS.ELA-LITERACY.RST.6-8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.</p> <p style="text-align: center;">Common Core Math</p> <p>Grade 6 The Number System CCSS.MATH.CONTENT.6.NS.C.8: Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p> <p>Grade 7 Geometry CCSS.Math.Content.7.G.B.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p>
<p>ISTE</p>	<p>ISTE Standards for Students Standard 1- Empowered Learner 1a: Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes. 1b: Students build networks and customize their learning environments in ways that support the learning process 1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.</p>

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.

Standard 2- Digital Citizen

2b: Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

Standard 3- Knowledge Constructor

3a: Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

Standard 4- Innovative Designer

4a: Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

4b: Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

4c: Students develop, test and refine prototypes as part of a cyclical design process.

4d: Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

Standard 5- Computational Thinker

5c: Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

5d: Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Standard 6- Creative Communicator

6a: Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

6b: Students create original works or responsibly repurpose or remix digital resources into new creations.

6c: Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

6d: Students publish or present content that customizes the message and medium for their intended audiences.

Standard 7- Global Collaborator

	<p>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.</p> <p>7b: Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.</p> <p>7c: Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.</p>
<p>NGSS</p>	<p>NGSS Next Generation Science Standards Science and Engineering Practices</p> <p>ETS1.B: Developing Possible Solutions: A solution needs to be tested, and then modified on the basis of the test results in order to improve it. / There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. / Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. / Models of all kinds are important for testing solutions.</p> <p>ETS1.C: Optimizing the Design Solution: Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process - that is, some of the characteristics may be incorporated into the new design. / The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.</p> <p>6-8 (MS) Engineering Design</p> <p>MS-ETS1-2 Engineering Design: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>MS-ETS1-3 Engineering Design: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p> <p>Ecosystems: Interactions, Energy, and Dynamics</p> <p>MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</p> <p>MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.</p>
<p>Mission I</p>	<p>CSTA Computer Science Teachers Association Standards</p>

(Ages 12–14)

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

2-CS-03: Systematically identify and fix problems with computing devices and their components.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

2-AP-13: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

2-AP-17: Systematically test and refine programs using a range of test cases.

2-AP-18: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.

2-AP-19: Document programs in order to make them easier to follow, test, and debug.

Data Analysis

1B-DA-07 Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

2-DA-08: Collect data using computational tools and transform the data to make it more useful and reliable.

Impacts of Computing

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

Mission II

CSTA Computer Science Teachers Association Standards

(Ages 12–14)

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

2-CS-03: Systematically identify and fix problems with computing devices and their components.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

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.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

2-AP-13: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

2-AP-16: Incorporate existing code, media, and libraries into original programs, and give attribution.

2-AP-17: Systematically test and refine programs using a range of test cases.

2-AP-18: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.

2-AP-19: Document programs in order to make them easier to follow, test, and debug.

Data Analysis

1B-DA-07 Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

2-DA-08: Collect data using computational tools and transform the data to make it more useful and reliable.

Impacts of Computing

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission III
(Ages 12–14)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

2-CS-03: Systematically identify and fix problems with computing devices and their components.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

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.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

2-AP-12: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.

2-AP-13: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

2-AP-14: Create procedures with parameters to organize code and make it easier to reuse.

2-AP-16: Incorporate existing code, media, and libraries into original programs, and give attribution.

2-AP-17: Systematically test and refine programs using a range of test cases.

2-AP-18: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.

2-AP-19: Document programs in order to make them easier to follow, test, and debug.

Data Analysis

1B-DA-07 Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

2-DA-08: Collect data using computational tools and transform the data to make it more useful and reliable.

Impacts of Computing

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission IV
(Ages 12–14)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

2-CS-03: Systematically identify and fix problems with computing devices and their components.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

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.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

2-AP-12: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.

2-AP-13: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

2-AP-17: Systematically test and refine programs using a range of test cases.

2-AP-18: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.

2-AP-19: Document programs in order to make them easier to follow, test, and debug.

Data Analysis

1B-DA-07 Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

2-DA-08: Collect data using computational tools and transform the data to make it more useful and reliable.

Impacts of Computing

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

**Mission V
(Ages 12–14)**

CSTA Computer Science Teachers Association Standards

Computing Systems

1B-CS-03: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

2-CS-03: Systematically identify and fix problems with computing devices and their components.

Algorithms and Programming

1B-AP-08: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10: Create programs that include sequences, events, loops, and conditionals.

1B-AP-11: Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

1B-AP-13: Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

2-AP-12: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.

2-AP-13: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs..

2-AP-16: Incorporate existing code, media, and libraries into original programs, and give attribution.

2-AP-17: Systematically test and refine programs using a range of test cases.

2-AP-18: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.

2-AP-19: Document programs in order to make them easier to follow, test, and debug.

Data Analysis

1B-DA-07 Use data to highlight or propose cause and-effect relationships, predict outcomes, or communicate an idea.

2-DA-08: Collect data using computational tools and transform the data to make it more useful and reliable.

Impacts of Computing

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.