



2027 NATIONAL SCIENCE OLYMPIAD

DIVISION B (MIDDLE SCHOOL; GRADES 6-9)

EVENT ALIGNMENT TO NATIONAL EDUCATIONAL STANDARDS

The alignments below identify the strongest direct connections between each 2027 Division B event and national standards. They are not intended as an exhaustive curriculum map. NGSS performance expectations are middle-school expectations (grades 6-8), while Science Olympiad Division B permits students in grades 6-9.

ANATOMY AND PHYSIOLOGY - Participants will be assessed on their understanding of the anatomy and physiology for the respiratory, digestive and immune systems of the human body.

Middle School Life Science

MS. Structure, Function, and Information Processing

MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

MS. Matter and Energy in Organisms and Ecosystems

MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions, forming new molecules that support growth or release energy as matter moves through an organism.

BOOMILEVER - Teams will build a cantilevered beam or truss structure that extends from a vertical Testing Wall and supports a load at a specified height and distance from the Testing Wall.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

BOTANY - Participants will demonstrate their knowledge of plant life and general botany principles.

Middle School Life Science

MS. Structure, Function, and Information Processing

MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.

MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.

MS. Growth, Development, and Reproduction of Organisms

MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures

affect reproductive success.

MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

MS. Matter and Energy in Organisms and Ecosystems

MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions, forming new molecules that support growth or release energy as matter moves through an organism.

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

MS. Interdependent Relationships in Ecosystems

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.

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS. Natural Selection and Adaptations

MS-LS4-2. Apply scientific ideas to construct an explanation for anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

CIRCUIT LAB - Participants will complete hands-on tasks and answer questions about electricity and electronics.

Middle School Physical Science

MS. Forces and Interactions

MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

MS. Energy

MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

CODEBUSTERS - Participants will cryptanalyze and decode encrypted messages using cryptanalysis techniques for historical and modern advanced ciphers.

K-12 Computer Science Framework

6-8 Networks and the Internet - Cybersecurity

CSF 6-8 Cybersecurity A. Explain how physical and digital security measures protect electronic information.

CSF 6-8 Cybersecurity B. Apply multiple methods of encryption to model the secure transmission of information.

CRIME BUSTERS - Given a scenario, a collection of evidence, and possible suspects, students will perform a series of tests; test results and other evidence will be used to solve a crime.

Middle School Physical Science

MS. Chemical Reactions

MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

MS. Structure and Properties of Matter

MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

NGSS Science and Engineering Practices

Middle School Practices

NGSS SEP 3. Planning and Carrying Out Investigations.

NGSS SEP 4. Analyzing and Interpreting Data.

NGSS SEP 6. Constructing Explanations and Designing Solutions.

DISEASE DETECTIVES - Participants will use their investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people.

Middle School Life Science

MS. Growth, Development, and Reproduction of Organisms

MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS. Interdependent Relationships in Ecosystems

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS. Ecosystems: Interactions, Energy, and Dynamics

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Middle School Earth and Space Science

MS. Earth and Human Activity

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

NGSS Science and Engineering Practices

Middle School Practices

NGSS SEP 3. Planning and Carrying Out Investigations.

NGSS SEP 4. Analyzing and Interpreting Data.

NGSS SEP 5. Using Mathematics and Computational Thinking.

NGSS SEP 6. Constructing Explanations and Designing Solutions.

DYNAMIC PLANET - Teams will complete tasks related to the properties and processes of Earth's fresh waters.

Middle School Earth and Space Science

MS. Earth's Systems

MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

MS. Weather and Climate

MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

MS. Earth and Human Activity

MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

ELASTIC LAUNCHED GLIDER - Prior to the tournament, teams will construct, collect data on test flights, analyze and optimize free flight Elastic Launched Gliders to achieve maximum time aloft.

Middle School Physical Science

MS. Forces and Interactions

MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS. Energy

MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

EXPERIMENTAL DESIGN - Participants will be assessed on the ability to design, conduct, and report the findings of an experiment entirely on-site.

NGSS Science and Engineering Practices

Middle School Practices

NGSS SEP 1. Asking Questions and Defining Problems.

NGSS SEP 3. Planning and Carrying Out Investigations.

NGSS SEP 4. Analyzing and Interpreting Data.

NGSS SEP 5. Using Mathematics and Computational Thinking.

NGSS SEP 6. Constructing Explanations and Designing Solutions.

NGSS SEP 7. Engaging in Argument from Evidence.

NGSS SEP 8. Obtaining, Evaluating, and Communicating Information.

FOOD SCIENCE - Teams will study the science behind milk products and experiment with ingredients and other variables to produce and analyze dairy products.

Middle School Physical Science

MS. Structure and Properties of Matter

MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.

MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

MS. Chemical Reactions

MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

MS. Energy

MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.

MS-PS3-4. Plan an investigation to determine relationships among transferred energy, type and mass of matter, and change in average kinetic energy of particles as measured by temperature.

Middle School Life Science

MS. Matter and Energy in Organisms and Ecosystems

MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions, forming new molecules that support growth or release energy as matter moves through an organism.

NGSS Science and Engineering Practices

Middle School Practices

NGSS SEP 3. Planning and Carrying Out Investigations.

NGSS SEP 4. Analyzing and Interpreting Data.

HEREDITY - Teams will answer questions, solve problems, and analyze data pertaining to classic and molecular genetics.

Middle School Life Science

MS. Growth, Development, and Reproduction of Organisms

MS-LS3-1. Develop and use a model to describe why structural changes to genes located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of an organism.

MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

MS. Natural Selection and Adaptations

MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

HOVERCRAFT - Prior to the competition, participants will design, construct, and calibrate a self-propelled, air-levitated vehicle to carry nickels down a track.

Middle School Physical Science

MS. Forces and Interactions

MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS. Energy

MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

METEOROLOGY - Participants will analyze severe weather and storms, including the factors that contribute to, cause, and influence them, using meteorological data, graphs, maps, charts, tables, and images.

Middle School Earth and Space Science

MS. Weather and Climate

MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

MS. Earth and Human Activity

MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

PING PONG PARACHUTE - Prior to the tournament, teams will design, build, and bring up to two bottle rockets to launch a ping pong ball attached to a parachute for maximum time aloft.

Middle School Physical Science

MS. Forces and Interactions

MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS. Energy

MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

REMOTE SENSING - Participants will demonstrate an understanding of the basic principles of remote sensing and interpret imagery, data, and maps related to Earth observation.

Middle School Physical Science

MS. Waves and Electromagnetic Radiation

MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

Middle School Earth and Space Science

MS. Earth's Systems

MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

MS. Weather and Climate

MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

MS. Earth and Human Activity

MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

ROCKS AND MINERALS - Teams will identify and classify rocks and minerals and demonstrate knowledge of how they reveal geologic processes, Earth's history, natural resources, and uses by society.

Middle School Physical Science

MS. Structure and Properties of Matter

MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.

Middle School Earth and Space Science

MS. Earth's Place in the Universe

MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

MS. Earth's Systems

MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.

MS. Earth and Human Activity

MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

ROLLER COASTER - Prior to the competition, teams will design, build, and test a Roller Coaster track to guide a ball using gravitational potential energy and travel as close as possible to a Target Time.

Middle School Physical Science

MS. Forces and Interactions

MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS. Energy

MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

SCRAMBLER - Teams will design, build, and test a mechanical device that uses energy from a falling mass to transport an egg, stop near a Terminal Barrier, and avoid breaking the egg.

Middle School Physical Science

MS. Forces and Interactions

MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.

MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS. Energy

MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

SOLAR SYSTEM - Participants will demonstrate their knowledge of habitability within and beyond the Solar System.

Middle School Earth and Space Science

MS. Earth's Place in the Universe

MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.

MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.

Middle School Physical Science

MS. Waves and Electromagnetic Radiation

MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

THERMODYNAMICS - Teams will construct a device prior to the tournament designed to collect heat and complete a written test on thermodynamic concepts.

Middle School Physical Science

MS. Structure and Properties of Matter

MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

MS. Energy

MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.

MS-PS3-4. Plan an investigation to determine relationships among transferred energy, type and mass of matter, and change in average kinetic energy of particles as measured by temperature.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

WATER QUALITY - Participants will be assessed on their understanding and evaluation of marine and estuary aquatic environments.

Middle School Life Science

MS. Interdependent Relationships in Ecosystems

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.

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS. Matter and Energy in Organisms and Ecosystems

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

MS. Ecosystems: Interactions, Energy, and Dynamics

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Middle School Earth and Space Science

MS. Earth's Systems

MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

MS. Weather and Climate

MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

MS. Earth and Human Activity

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Middle School Engineering Design

MS. Engineering Design

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-3. 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.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

WRITE IT DO IT - One participant will write a description of an object and how to build it; the other participant will attempt to construct the object from this description.

NGSS Science and Engineering Practices

Middle School Practices

NGSS SEP 2. Developing and Using Models.

NGSS SEP 8. Obtaining, Evaluating, and Communicating Information.

Common Core State Standards - English Language Arts

Writing in Science and Technical Subjects, Grades 6-8

CCSS.ELA-LITERACY.WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures, experiments, or technical processes.

K-12 Computer Science Framework

6-8 Algorithms and Programming

CSF 6-8 Algorithms. Algorithms affect how people interact with computers and how computers respond. Readable, generalizable algorithms are easier to follow, test, and debug.

CSF 6-8 Program Development. People design meaningful solutions by defining criteria and constraints, considering users' needs, and testing whether criteria and constraints were met.

SOURCE DOCUMENTS AND ALIGNMENT NOTES

[Next Generation Science Standards - DCI Arrangements](#)

[Next Generation Science Standards - Middle School by Topic](#)

[Next Generation Science Standards - Read the Standards](#)

[K-12 Computer Science Framework](#)

[Common Core ELA/Literacy - Writing in Science and Technical Subjects, Grades 6-8](#)

Method: 2027 event descriptions and content scopes were reviewed against the attached 2027 Division B Rules Manual. Only official national tournament events are included; trial events are excluded to match the prior-year documents. NGSS Science and Engineering Practices are used when an event's central work is investigative or communicative but no single disciplinary performance expectation captures the event. Codebusters and Write It Do It retain appropriate cross-disciplinary computer science and literacy connections.