

2027 NATIONAL SCIENCE OLYMPIAD STANDARDS ALIGNMENT BY EVENT

B DIVISION (MIDDLE SCHOOL; GRADES 6-9)

Event	Standards
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.	MS-LS1-3, MS-LS1-7
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.	MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
BOTANY - Participants will demonstrate their knowledge of plant life and general botany principles.	MS-LS1-1, MS-LS1-2, MS-LS1-4, MS-LS1-5, MS-LS1-6, MS-LS1-7, MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS3-2, MS-LS4-2, MS-LS4-4
CIRCUIT LAB - Participants will complete hands-on tasks and answer questions about electricity and electronics.	MS-PS2-3, MS-PS2-5, MS-PS3-2, MS-PS3-5
CODEBUSTERS - Participants will cryptanalyze and decode encrypted messages using cryptanalysis techniques for historical and modern advanced ciphers.	K-12 CS Framework: 6-8 Networks and the Internet - Cybersecurity
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.	MS-PS1-2, MS-PS1-3, NGSS SEP 3, NGSS SEP 4, NGSS SEP 6
DISEASE DETECTIVES - Participants will use their investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people.	MS-LS1-5, MS-LS2-2, MS-LS2-4, MS-ESS3-4, NGSS SEP 3, NGSS SEP 4, NGSS SEP 5, NGSS SEP 6
DYNAMIC PLANET - Teams will complete tasks related to the properties and processes of Earth's fresh waters.	MS-ESS2-1, MS-ESS2-2, MS-ESS2-4, MS-ESS2-5, MS-ESS2-6, MS-ESS3-1, MS-ESS3-2, MS-ESS3-3
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.	MS-PS2-2, MS-PS3-1, MS-PS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
EXPERIMENTAL DESIGN - Participants will be assessed on the ability to design, conduct, and report the findings of an experiment entirely on-site.	NGSS SEP 1, NGSS SEP 3, NGSS SEP 4, NGSS SEP 5, NGSS SEP 6, NGSS SEP 7, NGSS SEP 8
FOOD SCIENCE - Teams will study the science behind milk products and experiment with ingredients and other variables to produce and analyze dairy products.	MS-PS1-1, MS-PS1-2, MS-PS1-3, MS-PS1-4, MS-PS3-3, MS-PS3-4, MS-LS1-7, NGSS SEP 3, NGSS SEP 4
HEREDITY - Teams will answer questions, solve problems, and analyze data pertaining to classic and molecular genetics.	MS-LS3-1, MS-LS3-2, MS-LS4-4, MS-LS4-6

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HOVERCRAFT - Prior to the competition, participants will design, construct, and calibrate a self-propelled, air-levitated vehicle to carry nickels down a track.	MS-PS2-2, MS-PS3-1, MS-PS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
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.	MS-ESS2-5, MS-ESS2-6, MS-ESS3-2
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.	MS-PS2-2, MS-PS3-1, MS-PS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
REMOTE SENSING - Participants will demonstrate an understanding of the basic principles of remote sensing and interpret imagery, data, and maps related to Earth observation.	MS-PS4-1, MS-PS4-2, MS-PS4-3, MS-ESS2-2, MS-ESS2-4, MS-ESS2-5, MS-ESS2-6, MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, MS-ESS3-5
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.	MS-PS1-1, MS-ESS1-4, MS-ESS2-1, MS-ESS2-2, MS-ESS2-3, MS-ESS3-1
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.	MS-PS2-2, MS-PS3-1, MS-PS3-2, MS-PS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
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.	MS-PS2-1, MS-PS2-2, MS-PS3-1, MS-PS3-2, MS-PS3-5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
SOLAR SYSTEM - Participants will demonstrate their knowledge of habitability within and beyond the Solar System.	MS-ESS1-2, MS-ESS1-3, MS-PS4-1, MS-PS4-2
THERMODYNAMICS - Teams will construct a device prior to the tournament designed to collect heat and complete a written test on thermodynamic concepts.	MS-PS1-4, MS-PS3-3, MS-PS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
WATER QUALITY - Participants will be assessed on their understanding and evaluation of marine and estuary aquatic environments.	MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS2-4, MS-LS2-5, MS-ESS2-4, MS-ESS2-6, MS-ESS3-3, MS-ESS3-4, MS-ESS1-1, MS-ETS1-3, MS-ETS1-4
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 SEP 2, NGSS SEP 8; CCSS.ELA-LITERACY.WHST.6-8.2; K-12 CS Framework: 6-8 Algorithms and Programming

Alignment sources: Next Generation Science Standards, K-12 Computer Science Framework, and Common Core ELA/Literacy. Official national tournament events only; trial events excluded. Detailed standard language and source links appear in the companion alignment document.