

2027 NATIONAL SCIENCE OLYMPIAD STANDARDS ALIGNMENT BY EVENT

C DIVISION (HIGH SCHOOL; GRADES 9-12)

Event	Standards
ANATOMY AND PHYSIOLOGY - Participants will be assessed on their understanding of the anatomy and physiology of the respiratory, digestive, and immune systems of the human body.	HS-LS1-2, HS-LS1-3, HS-LS1-7
ASTRONOMY - Teams will demonstrate an understanding of stellar evolution in normal and starburst galaxies.	HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4, HS-PS4-1, HS-PS4-3
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.	HS-ETS1-2, HS-ETS1-3, HS-ETS1-4
BOTANY - Participants will demonstrate their knowledge of plant life and general botany principles.	HS-LS1-1, HS-LS1-2, HS-LS1-5, HS-LS1-6, HS-LS1-7, HS-LS2-3, HS-LS2-4, HS-LS2-6, HS-LS3-1, HS-LS4-1, HS-LS4-2, HS-LS4-4
CHEMISTRY LAB - Teams will complete tasks and answer questions involving chemistry processes focused on kinetics and gases.	HS-PS1-1, HS-PS1-2, HS-PS1-4, HS-PS1-5, HS-PS1-7, HS-ESS2-4, NGSS SEP 3, NGSS SEP 4
CIRCUIT LAB - Participants will complete hands-on tasks and answer questions about electricity and electronics.	HS-PS2-4, HS-PS2-5, HS-PS3-1, HS-PS3-2, HS-PS3-5
CODEBUSTERS - Participants will cryptanalyze and decode encrypted messages using techniques for historical and modern advanced ciphers.	K-12 CS Framework: 9-12 Computing Systems; Algorithms and Programming; Networks and the Internet
DESIGNER GENES - Teams will answer questions, solve problems, and analyze data pertaining to classic, evolutionary, and molecular genetics.	HS-LS3-1, HS-LS3-2, HS-LS3-3, HS-LS4-2, HS-LS4-3, HS-LS4-4
DISEASE DETECTIVES - Participants will use investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people.	HS-LS2-1, HS-LS2-2, HS-LS2-6, NGSS SEP 3, NGSS SEP 4, NGSS SEP 5, NGSS SEP 6, NGSS SEP 7
DYNAMIC PLANET - Teams will complete tasks related to the properties and processes of Earth's fresh waters.	HS-ESS2-1, HS-ESS2-2, HS-ESS2-4, HS-ESS2-5, HS-ESS2-6, HS-ESS3-1, HS-ESS3-4, HS-ESS3-6
ELECTRIC VEHICLE - Teams will design, build, and test a vehicle using electrical energy to travel for a set time, push a bottle past a line, reverse, and stop near a Target Point.	HS-PS2-1, HS-PS3-1, HS-PS3-3, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4
ENGINEERING CAD - Teams will read engineering drawings, collaborate to CAD parts in Onshape, and combine those parts with provided components to create an assembly.	HS-ETS1-2, HS-ETS1-3, HS-ETS1-4

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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
FORENSICS - Given a scenario and possible suspects, students will perform tests and use the results with other evidence to solve a crime.	HS-PS1-1, HS-PS1-2, HS-PS1-3, HS-LS3-1, HS-LS3-3, NGSS SEP 3, NGSS SEP 4, NGSS SEP 6
HOVERCRAFT - Participants will design, construct, and calibrate a self-propelled, air-levitated vehicle to carry nickels down a track.	HS-PS2-1, HS-PS3-1, HS-PS3-3, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4
MISSION POSSIBLE - Competitors will design, build, test, and document a Rube Goldberg-like device that completes specified Start and Final Actions and optional intermediate actions.	HS-PS2-1, HS-PS3-1, HS-PS3-2, HS-PS3-3, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4
PING PONG PARACHUTE - 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.	HS-PS2-1, HS-PS3-2, HS-PS3-3, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4
PROTEIN MODELING - Participants will complete a written exam and use computer visualization and online resources to construct a physical model of the sialic acid binding site of the 2009 H1N1 influenza hemagglutinin protein.	HS-LS1-1, HS-LS1-2, HS-LS3-1, NGSS SEP 2, NGSS SEP 8
REMOTE SENSING - Participants will use remote sensing imagery, data, and computational process skills to complete tasks related to climate-change processes in the Earth system.	HS-PS4-1, HS-PS4-2, HS-PS4-5, HS-ESS2-2, HS-ESS2-4, HS-ESS2-5, HS-ESS3-1, HS-ESS3-5, HS-ESS3-6
ROCKS AND MINERALS - Teams will identify and classify rocks and minerals and demonstrate how they reveal geologic processes, Earth's history, natural resources, and uses by society.	HS-PS1-1, HS-ESS1-6, HS-ESS2-1, HS-ESS2-3, HS-ESS3-1
THERMODYNAMICS - Teams will construct a device designed to collect heat and complete a written test on thermodynamic concepts.	HS-PS1-4, HS-PS3-1, HS-PS3-2, HS-PS3-3, HS-PS3-4, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4
WATER QUALITY - Participants will be assessed on their understanding and evaluation of marine and estuary aquatic environments.	HS-LS2-1, HS-LS2-2, HS-LS2-3, HS-LS2-4, HS-LS2-6, HS-LS2-7, HS-ESS2-5, HS-ESS2-6, HS-ESS3-4, HS-ETS1-2, HS-ETS1-3
WRIGHT STUFF - Teams will construct, collect flight-test data, analyze, and optimize free-flight rubber-powered airplanes to achieve maximum time aloft.	HS-PS2-1, HS-PS3-2, HS-PS3-3, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4

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