2016 NATIONAL SCIENCE OLYMPIAD – NEXT GENERATION SCIENCE STANDARDS ALIGNMENT

B (MIDDLE SCHOOL) DIVISION

B Events	Next Generation Science Standards
Air Trajectory – Prior to the competition, teams will design, construct, and calibrate a single device capable of launching projectiles onto a target and collect data regarding device parameters and performance.	Engineering Design (MS-ETS1–2-4) Motion and Stability: Forces and Interactions (MS-PS2–2) Science and Engineering Practices (2-6)
Anatomy – Understand the anatomy of the integumentary, skeletal, and muscular systems.	From Molecules to Organisms: Structures and Processes (MS-LS1–3)
Bio Process Lab – This event is a lab-oriented competition involving the fundamental science processes of a middle school life science/biology lab program.	Science and Engineering Practices (1-2, 4-6)
Bottle Rocket – Prior to the tournament, teams construct up to two rockets designed to stay aloft for the greatest amount of time while carrying a raw Grade A large Chicken egg that survives impact.	Engineering Design (MS-ETS1–2-4) Science and Engineering Practices (2-6)
Bridge Building – Prior to the competition teams design and build a Bridge meeting these requirements to achieve the highest structural efficiency while being tested upon uneven surfaces.	Science and Engineering Practices (2-6)
Crave the Wave – In this event competitors must demonstrate knowledge and process skills needed to solve problems and answer questions regarding all types and areas of waves and wave motion.	Waves and Their Applications in Technologies for Information Transfer (MS-PS4–1-2)
Crime Busters – Given a scenario, a collection of evidence, and possible suspects, students will perform a series of tests. The test results along with other evidence will be used to solve a crime.	Matter and Its Interactions (MS-PS1–2-3) Science and Engineering Practices (3-4, 8)
Disease Detectives – Students will use their investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people with a focus on Population Growth.	Engineering Design (MS-ETS1–2-3) Earth and Human Activity (MS-ESS3–4) Science and Engineering Practices (2)
Dynamic Planet—Oceanography – Teams will complete tasks related to physical and geological oceanography.	Earth's Systems (MS-ESS2-3, 6) Science and Engineering Practices (2, 4, 6)
Elastic Launch Glider – Prior to the tournament teams design, construct, and test elastic-launched gliders to achieve the maximum time aloft.	Motion and Stability: Forces and Interaction (MS-PS2–1) Engineering Design (MS-ETS1–2-4) Science and Engineering Practices (2-6)
Experimental Design – This event will determine a team's ability to design, conduct, and report the findings of an experiment actually conducted on site.	Science and Engineering Practices (1-8)
Food Science—Dairy – Teams will study the science behind food items such as cheese, yogurt, milk, ice cream, and cottage cheese and experiment with ingredients and physical parameters to produce and analyze these products.	Science and Engineering Practices (3-8)
Fossils – Teams will demonstrate their knowledge of ancient life by completing selected tasks at a series of stations. Emphasis will be on fossil identification and ability to answer questions about classification, habitat, ecologic relationships, behaviors, environmental adaptations and the use of fossils to date and correlate rock units.	Earth's Systems (MS-ESS2–3) Earth's Systems (HS-ESS2–7) Biological Evolution: Unity and Diversity (MS-LS4–1-2)
Green Generation – Students will demonstrate an understanding of general ecological principles, the history and consequences of human impact on our environment, solutions to reversing trends and sustainability concepts	Ecosystems: Interactions, Energy, and Dynamics (MS-LS2–1-5) Earth and Human Activity (MS-ESS3–3)
Invasive Species – This event will test student knowledge of invasive species in local and national ecosystems.	Biological Evolution: Unity and Diversity (HS-LS4–2) Earth and Human Activity (MS-ESS3–3)
Meteorology – This event emphasizes understanding of basic meteorological principles with emphasis on interpretation and analysis of meteorological data.	Earth's Systems (MS-ESS2–5)
Mission Possible – Prior to competition, competitors will design, build, test, and document a Rube Goldberg®-like device that completes a required task through an optional series of simple machines.	Energy (HS-PS3–3) Science and Engineering Practices (2-8)

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Picture This – The objective is to have team members take turns drawing representations of a set of scientific terms/concepts (not scientists) while other team member guesses the term being drawn.	Science and Engineering Practices (2, 6, 8)
Reach for the Stars – Students will demonstrate an understanding of the properties and evolution of stars especially star forming regions and supernova remnants and their observation with different portions of the electromagnetic spectrum: Radio, Infrared, Visible, Ultraviolet, X-Ray and Gamma Ray.	Earth's Place in the Universe (HS-ESS1–2-3)
Road Scholar – Teams will answer interpretive questions that may use one or more state highway maps, USGS topographic maps, Internet-generated maps, a road atlas or satellite/aerial images.	Science and Engineering Practices (2)
Scrambler – Prior to the competition, competitors must design, build, and test one mechanical device, which uses the energy from a falling mass to transport an egg along a track as quickly as possible and stop as close to the center of a Terminal Barrier without breaking the egg.	Engineering Design (MS-ETS1-2-4) Science and Engineering Practices (2-6)
Wind Power – Teams will build a blade assembly that consists of any kind of propeller/pinwheel/rotor attached to a compact disc (CD), which will be used to capture wind power. Students will also be tested on their knowledge regarding alternative energy.	Science and Engineering Practices (2-8)
Write It/Do It – One student will write a description of an object and how to build it, and then the other student will attempt to construct the object from this description.	Science and Engineering Practices (2, 5-8)