

2018 NATIONAL SCIENCE OLYMPIAD – NEXT GENERATION SCIENCE STANDARDS ALIGNMENT

B (MIDDLE SCHOOL) DIVISION

B Events	Next Generation Science Standards
Anatomy and Physiology – Understand the anatomy and physiology of the human body systems.	From Molecules to Organisms: Structures and Processes (MS-LS1–3)
Battery Buggy – Teams will construct a vehicle that uses electrical energy as its sole means of propulsion, quickly travels a specified distance, and stops as close as possible to the Finish Point.	Engineering Design (MS-ETS1–2-4) Science and Engineering Practices (2-6)
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 food borne illness.	Engineering Design (MS-ETS1–2-3) Earth and Human Activity (MS-ESS3–4) Science and Engineering Practices (2)
Dynamic Planet – Teams will complete tasks related to plate tectonics.	Earth’s Systems (MS-ESS2–2-3; HS-ESS2–2-3)
Ecology – Students will answer questions involving content knowledge and process skills in the area of ecology and adaptations in North American biomes.	Ecosystems: Interactions, Energy, and Dynamics (MS-LS2–1-5; HS-LS2–1-8)
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)
Fast Facts – Teams will match terms with a given letter to given science categories.	Science and Engineering Practices (8)
Herpetology – This event will test student knowledge of amphibians and reptiles including turtles and crocodilians.	Biological Evolution: Unity and Diversity (HS-LS4–2)
Hovercraft – Teams will construct a self-propelled air-levitated vehicle.	Science and Engineering Practices (2-6)
Meteorology – This event emphasizes understanding factors affecting world climate.	Earth’s Systems (MS-ESS2–6) Earth and Human Activity (MS-ESS3–5)
Microbe Mission – Teams will answer questions, solve problems, and analyze data about microbes.	From Molecules to Organisms: Structures and Processes (MS-LS1–1, 6, 7; HS-LS1–1, 3-7)
Mystery Architecture – At the beginning of the event, teams will be given a bag of building materials and instructions for designing and building a device that can be tested.	Engineering Design (MS-ETS1–2-4)
Optics – Teams will direct a laser beam towards a target and be tested on their knowledge of geometric and physical optics.	Waves and their Applications in Technologies for Information Transfer (MS-PS4–1-3)
Potions and Poisons – This event is about chemical properties and effects of specified toxic and therapeutic chemical substances, with a focus on household and environmental toxins or poisons.	Structure and Properties of Matter (5-PS1–2-4; MS-PS1–2; HS-PS1–1)
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)
Rocks and Minerals – Teams will demonstrate their knowledge of rocks and minerals.	Matter and Its Interactions (MS-PS1–1) Earth’s Systems (MS-ESS2–1; HS-ESS2–3)
Roller Coaster – Prior to the competition, teams design, build, and test a roller coaster track to guide a vehicle that uses gravitational potential energy as its sole means of propulsion to travel as close as possible to a target time, while minimizing the height of the vehicle with bonuses for gaps.	Engineering Design (MS-ETS1–2-4) Science and Engineering Practices (2-6)
Solar System – Students will demonstrate an understanding and knowledge of the geologic characteristics and evolution of the Earth’s moon and other rocky bodies of the solar system.	Earth’s Place in the Universe (MS-ESS1–1-3)

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Thermodynamics – Teams must construct an insulated device prior to the tournament that is designed to retain heat and complete a written test on thermodynamic concepts.	Engineering Design (MS-ETS1–2-4) Science and Engineering Practices (2-8) Energy (MS-PS3–3-4; HS-PS3–4)
Towers – Prior to the competition teams design and build a tower meeting requirements to achieve the highest structural efficiency.	Science and Engineering Practices (2-6)
Wright Stuff – Prior to the tournament teams design, construct, and test free flight rubber-powered monoplanes to achieve maximum time aloft.	Science and Engineering Practices (2-6)
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)