

2018 NATIONAL SCIENCE OLYMPIAD – NEXT GENERATION SCIENCE STANDARDS ALIGNMENT

C (SENIOR HIGH SCHOOL) DIVISION

C 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 (HS-LS1–2-3)
Astronomy – Teams will demonstrate an understanding of the basic concepts of mathematics and physics relating to stellar evolution and Type II Supernova Events.	Earth’s Place in the Universe (HS-ESS1–2-3)
Chemistry Lab – Teams will complete one or more tasks and answer a series of questions involving the Science processes of chemistry focused in the areas of physical properties and thermodynamics.	Matter and Its Interactions (HS-PS1–2, 4-5, 7) HS-PS1–1-5, 7
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.	Earth and Human Activity (HS-ESS3–4) Engineering Design (HS-ETS1–2-3) 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)
Fermi Questions – Teams provide answers to a series of “Fermi Questions”; science related questions that seek fast, rough estimates of a quantity, which is either difficult or impossible to measure directly.	Science and Engineering Practices (5)
Forensics – Given a scenario and some possible suspects, students will perform a series of tests. These tests, along with other evidence or test results will be used to solve a crime.	Science and Engineering Practices (2-8)
Game On – This event will determine a team’s ability to design and build on an original computer game incorporating the theme provided to them by the supervisor using the program Scratch.	Science and Engineering Practices (2, 5)
Helicopters – Teams will design, build, and test free flight helicopters to achieve maximum time aloft.	Science and Engineering Practices (2-6)
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)
Materials Science – Students will answer questions or complete tasks involving the science process of polymers.	Matter and Its Interactions (HS-PS1–3) Motion and Stability: Forces and Interactions (HS-PS2–6) Science and Engineering Practices (4)
Microbe Mission – Teams will answer questions, solve problems, and analyze data about microbes.	Molecules to Organisms: Structures and Processes (MS-LS1–1, 6, 7; HS-LS1–1, 3-7)
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)
Mousetrap Vehicle – Teams must design, build and test a vehicle using one, or two, snap mousetraps as its sole means of propulsion.	Science and Engineering Practices (2-8)
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 (HS-PS4–1, 3-5)
Remote Sensing – Participants will use remote sensing imagery, data, and computational processes skills to complete tasks related to climate change processes in the Earth system.	Waves and their Applications in Technologies for Information Transfer (HS-PS4–1, 2, 5) Earth’s Systems (HS-ESS2–2, 4-5)
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)

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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)
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)