

**2014 NATIONAL SCIENCE OLYMPIAD – NEXT GENERATION SCIENCE STANDARDS ALIGNMENT**

**B (MIDDLE SCHOOL) DIVISION**

| <b>B Events</b>  | <b>Next Generation Science Standards</b>  |
|--|---|
| <b>Anatomy</b> – Students will be tested on their knowledge of anatomy and health concepts of the nervous and integumentary systems.   | From Molecules to Organisms: Structures and Processes (MS-LS1-3, MS-LS1-8)                          |
| <b>Boomilever</b> – Students will design and build the most efficient boomilever.  | Engineering Design (MS-ETS1-2, 3, 4)<br>Science and Engineering Practices (2-8)                     |
| <b>Can't Judge a Powder</b> – Students will test and characterize one pure substance and answer a series of questions about this substance.  | Matter and Its Interactions (MS-PS1-2)  |
| <b>Crime Busters</b> – Students will identify the perpetrators of a crime or crimes by using paper chromatography and analysis of unknown solids, liquids, and plastics found at the scene of a crime.   | Matter and Its Interactions (MS-PS1-2, 3)   |
| <b>Disease Detectives</b> – This event requires students to apply principles of epidemiology to a real-life health situation or problem with a focus on environmental quality.   | Engineering Design (MS-ETS1-2, 3)<br>Science and Engineering Practices (2)                          |
| <b>Dynamic Planet</b> – Students will use process skills to complete tasks related to glaciation and long-term climate change.   | Earth's Place in the Universe (MS-ESS1-4)<br>Earth's Systems (MS-ESS2-2)                            |
| <b>Entomology</b> – Students will identify insects, answer questions, and use a dichotomous key.   | Biological Evolution: Unity and Diversity (MS-LS4-2)  |
| <b>Experimental Design</b> – Given a set of objects, students will design, conduct, analyze, and write up an experiment.   | Science and Engineering Practices (1-8)   |
| <b>Helicopters</b> – Teams will construct and fly free flight rubber-powered helicopters to achieve maximum flight times.  | Engineering Design (MS-ETS1-2, 3, 4)<br>Science and Engineering Practices (2-8)                     |
| <b>Heredity</b> – Students will solve problems and analyze data using the basic principles of genetics.  | Heredity: Inheritance and Variation of Traits (MS-LS3-1, 2)   |
| <b>Meteorology</b> – Students will demonstrate an understanding of basic meteorological principles.  | Earth's Systems (MS-ESS2-5, 6)  |
| <b>Metric Mastery</b> – Students will estimate and measure objects in metric units.  | Science and Engineering Practices (5)   |
| <b>Road Scholar</b> – Students will interpret various map features using a variety of road and topographic maps.   | Earth's Systems (MS-ESS2-2)<br>Science and Engineering Practices (2)                                |
| <b>Robo Cross</b> – Students will design and build a robot capable of performing certain tasks.  | Engineering Design (MS-ETS 2, 3, 4)<br>Science and Engineering Practices (2-8)                      |
| <b>Rocks and Minerals</b> – Students will identify, describe, and classify various specimens.  | Earth's Systems (MS-ESS2-1)   |
| <b>Rotor Egg Drop</b> – Students will construct an unpowered helicopter device to safely transport a chicken egg from a specified height.  | Motion and Stability: Forces and Interactions (MS-PS2-2)<br>Science and Engineering Practices (2-8) |
| <b>Shock Value</b> – Students will compete in activities involving electricity, magnetism, and simple electrical devices.  | Science and Engineering Practices (2, 4, 5, 6)  |
| <b>Simple Machines</b> - Students will perform activities and answer questions related to simple machines.   | Science and Engineering Practices (2, 4, 5, 6)  |
| <b>Solar System</b> – Students will demonstrate an understanding and knowledge of the properties and evolution of extraterrestrial ice and water in the solar system.  | Earth's Place in the Universe (MS-ESS1-3)   |
| <b>Sounds of Music</b> – Prior to the competition, students will build two instruments based on a 12 tone tempered scale describe the principles behind their operation, and be able to perform a major scale, a required melody, and a chosen melody with each. | Science and Engineering Practices (2-6)   |
| <b>Water Quality</b> – Students will evaluate aquatic environments.  | Ecosystems: Interactions, Energy, and Dynamics (MS-LS2-1, 2, 3, 4)                                  |
| <b>Wheeled Vehicles</b> – Students will design, build, and test a vehicle that uses a non-metallic, elastic solid as a means of propulsion.  | Engineering Design (MS-ETS1-2, 3, 4)<br>Science and Engineering Practices (2-8)                     |
| <b>Write It/Do It</b> – A technical writing exercise where students write a description of a contraption and other students will attempt to recreate it using only the written description.  | Science and Engineering Practices (2, 5, 6, 7, 8)   |