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

### C (SENIOR HIGH SCHOOL) DIVISION

| C Events | Next Generation Science Standards |
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| **Anatomy and Physiology** – This event encompasses the anatomy and physiology of selected body systems, this year limited to neurons, integumentary, and immune systems. | From Molecules to Organisms: Structures and Processes (HS-LS1) |
| **Astronomy** – Students will demonstrate an understanding of the basic concepts of math and physics relating to stellar evolution and variable stars. | Earth's Place in the Universe (HS-ESS1-2, 3) |
| **Boomilever** – Students will design and build the most efficient boomilever. | Science and Engineering Practices (2-8) |
| **Bungee Drop** – Students will provide one elastic cord which they will use to get a container as close as possible to, without touching, a landing surface. | Energy (HS-PS3-1, 3)<br>Science and Engineering Practices (2-8) |
| **Chem Lab** – Students will demonstrate chemistry laboratory skills related to equilibrium and chemical reactions/stoichiometry. | Matter and Its Interactions (HS-PS1-1, 2, 3, 6, 7) |
| **Circuit Lab** – Students will compete in activities involving knowledge of direct current (DC) Electrical Circuits. | Science and Engineering Practices (2, 4, 5, 6) |
| **Compound Machines** – Students will perform activities and answer questions related to simple and compound machines. | Science and Engineering Practices (2, 4, 5, 6) |
| **Designer Genes** – Students will solve problems using Molecular Genetics and Biotechnology. | Heredity: Inheritance and Variation of Traits (HS-LS3-1, 2, 3) |
| **Disease Detectives** – 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 (HS-ETS1-2, 3)<br>Science and Engineering Practices (2) |
| **Dynamic Planet** – Students will work at stations that display a variety of Earth science materials related to Earth's glaciation and long-term climate change. | Earth's Systems (HS-ESS2-1, 4, 5) |
| **Elastic Launched Glider** – Students will build a glider to achieve the maximum time aloft. | Science and Engineering Practices (2-8) |
| **Entomology** – Students will identify insects, answer questions, and use a dichotomous key. | Biological Evolution: Unity and Diversity (HS-LS4-2) |
| **Experimental Design** – Given a set of objects, teams will design, conduct, analyze, and write-up an experiment. | Science and Engineering Practices (1-8) |
| **Forensics –** Students will identify polymers, solids, fibers, and other materials in a crime scenario. | Science and Engineering Practices (2-8) |
| **GeoLogic Mapping** – Students will demonstrate their understanding of topographic maps. | Earth's Systems (HS-ESS2-1)<br>Earth and Human Activity (HS-ESS3-1) |
| **MagLev** – Students will construct self-propelled magnetically-levitated vehicles which will move down a magnetic track. | Motion and Stability: Forces and Interactions (HS-PS2-5)<br>Science and Engineering Practices (2-8) |
| **Materials Science** – Students will answer questions or complete talks involving the science process of chemistry focused in the areas of Materials Science. | Matter and Its Interactions (HS-PS1-3)<br>Motional and Stability: Forces and Interactions (HS-PS2-6)<br>Science and Engineering Practices (2-8) |
| **Mission Possible** – Students will design and build a "Rube Goldberg" device that completes a required final task. | Energy (HS-PS3-3)<br>Science and Engineering Practices (2-8) |
| **Rocks and Minerals** – Students will identify, describe, and classify various specimens. | Earth's Systems (HS-ESS2-3) |
| **Scrambler** – Students will design and build a mechanical device to transport an egg along a straight track as quickly as possible. | Science and Engineering Practices (2-8) |
| **Technical Problem Solving –** Students will gather and process data to solve problems. | Science and Engineering Practices (2-8) |
| **Water Quality –** Students will evaluate aquatic environments. | Ecosystems: Interactions, Energy, and Dynamics (HS-LS2-1, 2, 3, 4, 6, 7) |
| **Write It/Do It** – 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) |