

**2023 NATIONAL SCIENCE OLYMPIAD STANDARDS ALIGNMENT BY EVENT  
B DIVISION (MIDDLE SCHOOL; Grades 6-9)**

<b>Event</b>	<b>Standards</b>
<b>ANATOMY AND PHYSIOLOGY</b> – Participants will be assessed on their understanding of the anatomy and physiology for the human Nervous, Sense Organs, and Endocrine systems.	<i>MS-LS 1–3</i>
<b>BIO PROCESS LAB</b> – This event is a lab-oriented competition involving the fundamental science processes of a middle school life science/biology lab program.	<i>MS-LS 1-1., MS-LS 1-2, MS-LS 1-5, MS-LS 1-7., MS-LS 2-1., MS-LS 2-2</i>
<b>BRIDGE</b> – Teams will design and build a Bridge (Structure) meeting requirement specified in these rules to achieve the highest structural efficiency.	<i>MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3, MS-ETS 1-4</i>
<b>CAN’T JUDGE A POWDER</b> - Students will test and characterize one pure substance and then, based only on the data they collect, answer a series of questions about that substance. Students will not be asked to identify the substance. The emphasis of this event is on the quality of the data collected, answering questions about the substance and providing data to support their answers.	<i>MS-PS 1–2, MS-PS 1–3,</i>
<b>CRIME BUSTERS</b> – 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.	<i>MS-PS 1–2, MS-PS 1–3, MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3</i>
<b>CODEBUSTERS</b> – Teams will cryptanalyze and decode encrypted messages using cryptanalysis techniques for historical and modern advance ciphers.	K-12 Computer Science Framework 6-8 Networks and the Internet
<b>CRAVE THE WAVE</b> – In this event competitors must demonstrate knowledge and process skills needed to solve problems and answer questions regarding all types of waves and wave motion.	<i>MS-PS 4-1., MS-PS 4-2., MS-PS 4-3.</i>
<b>DISEASE DETECTIVES</b> – Participants will use their investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people.	<i>MS-LS 1-5, MS-LS 2-2, MS-LS 2-4, MS-LS 4-4, MS-ESS 3-4, MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3</i>
<b>DYNAMIC PLANET</b> – Students will use process skills to complete tasks related to Earth’s fresh waters.	<i>MS-ESS 2-4, MS-ESS 2-6, MS-ESS 3-2, MS-ESS 3-3,</i>
<b>EXPERIMENTAL DESIGN</b> – This event will determine the participant’s ability to design, conduct, and report the findings of an experiment conducted entirely on site.	<i>MS-PS 1-2, MS-PS 1-4, MS-PS 1-5, MS-PS 2-2, MS-PS 2-5, MS-PS 3-1, MS-PS 3-4, MS-LS 1–1, MS-LS 1–3, MS-LS 1–6</i>
<b>FAST FACTS</b> - Teams will fill in a grid of terms that begin with a given letter to match given scientific categories.	<i>MS-PS 1-2, MS-PS 1-4, MS-PS 1-5, MS-PS 2-2, MS-PS 2-5, MS-PS 3-1, MS-PS 3-4, MS-LS 1–1, MS-LS 1–3, MS-LS 1–6, MS-LS 1-5, MS-LS 2-2, MS-LS 2-4, MS-LS 4-4</i>
<b>FLIGHT</b> - Prior to the tournament teams design, construct, and test free flight rubber-powered aircraft to achieve maximum time aloft.	<i>MS-PS 2-1, MS-PS 3-5, MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3, MS-ETS 1-4</i>
<b>FORESTRY</b> - Participants will be assessed on their knowledge of trees found in the United States that are on the 2023 Official Science Olympiad National Tree List.	<i>MS-LS 1-4., MS-LS 4-2., MS-LS 4-3.</i>
<b>GREEN GENERATION</b> – 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.	<i>MS-LS 2-1, MS-LS 2-2, MS-LS 2-3, MS-ESS 3–4</i>
<b>METEOROLOGY</b> – This event emphasizes understanding of basic meteorological principles with emphasis on analysis and interpretation of meteorological data, graphs, charts, and images.	<i>MS-ESS 2-5, MS-ESS 2-6, MS-ESS 3-2,</i>
<b>ROAD SCHOLAR</b> – 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.	<i>MS-ESS 2-3, MS-ESS 3-1</i>
<b>ROCKS AND MINERALS</b> – Participants will demonstrate their knowledge of rocks and minerals.	<i>MS-PS 1-2., MS-ESS 1-4, MS-ESS 2-1, MS-ESS 2-2., MS-ESS 2-3</i>
<b>ROLLER COASTER</b> - Prior to the competition, teams design, build, and test a Roller Coaster track to guide a ball/sphere that uses gravitational potential energy as its sole means of propulsion to travel as close as possible to a Target Time.	<i>MS-PS 2-1, MS-PS 2-2, MS-PS 3-1, MS-PS 3-5, MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3, MS-ETS 1-4</i>
<b>SOLAR SYSTEM</b> – Students will demonstrate an understanding and knowledge of planet formation and structure in our solar system and how it relates to that observed in extrasolar systems.	<i>MS-ESS 1-3.</i>

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<p><b>STORM THE CASTLE</b> – 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.</p>	<p><i>MS-PS 2-2, MS-PS 3-1., MS-PS 3-5., MS-ETS 1-1., MS-ETS 1-2., MS-ETS 1-3., MS-ETS 1-4.</i></p>
<p><b>WHEELED VEHICLE</b> - Teams design, build, and test one Vehicle that uses non-metallic, elastic material as its sole means of propulsion to travel a distance as quickly and accurately as possible.</p>	<p><i>MS-PS 2-1., MS-PS 3-5., MS-ETS 1-1., MS-ETS 1-2., MS-ETS 1-3., MS-ETS 1-4.</i></p>
<p><b>WRITE IT/DO IT</b> – One participant will write a description of an object and how to build it. The other participant will attempt to construct the object from this description.</p>	<p>CCSS ELA Standards  W6.2, W7.2, W8.2  K-12 Computer Science Framework  6-8 <i>Algorithms and Programming</i>,</p>