

**2022 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>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>ELECTRIC WRIGHT STUFF</b> – Prior to the tournament teams design, construct, and test free flight electric-powered monoplanes to achieve maximum time aloft.	<i>MS-PS 2-1, MS-PS 3-5, MS-ETS 1-1, -ETS 1-2, MS-ETS 1-3, MS-ETS 1-4.</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>FOOD SCIENCE</b> - Participants will answer questions on food chemistry with a focus on fermentation and pickling. In addition, participants will build a salinometer/hydrometer capable of measuring salt compositions between 1-10% (mass/volume).	<i>MS-PS 1-2., MS-LS 1-7.</i>
<b>FOSSILS</b> – Teams use fossils to date and correlate rock units as well as demonstrate their knowledge of ancient life by completing tasks related to fossil identification and classification.	<i>MS-PS 2-3, MS-LS 4-1, MS-LS 4-2,</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>MISSION POSSIBLE</b> - Prior to the competition, participants design, build, test, and document a Rube Goldberg® - like Device that completes required Start and Final Actions through a series of specific actions.	<i>MS-PS 3-5., MS-ETS 1-1., MS-ETS 1-2., MS-ETS 1-3., MS-ETS 1-4.</i>
<b>MOUSETRAP VEHICLE</b> - Teams design, build, and test one Vehicle using one mousetrap as its sole means of propulsion to reach a target as quickly and accurately as possible.	<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>ORNITHOLOGY</b> - Participants will be assessed on their knowledge of North American birds.	<i>MS-LS 1-4., MS-LS 4-2., MS-LS 4-3.</i>
<b>PING PONG PARACHUTE</b> - Prior to the tournament, teams will design, build, and bring up to two bottle rockets to the tournament to launch a ping pong ball attached to a parachute to stay aloft for the greatest amount of time.	<i>MS-PS 2-2., MS-PS 2-4., 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>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>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>

**2022 NATIONAL SCIENCE OLYMPIAD STANDARDS ALIGNMENT BY EVENT**  
**B DIVISION (MIDDLE SCHOOL; Grades 6-9)**

<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.	<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>
<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.	CCSS ELA Standards W6.2, W7.2, W8.2 K-12 Computer Science Framework <i>6-8 Algorithms and Programming,</i>