

**2024 NATIONAL SCIENCE OLYMPIAD STANDARDS ALIGNMENT BY EVENT
B DIVISION (MIDDLE SCHOOL; Grades 6-9)**

| Event | Standards |
|---|---|
| AIR TRAJECTORY – 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 3-5, MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3, MS-ETS 1-4</i> |
| ANATOMY AND PHYSIOLOGY – Participants will be assessed on their understanding of the anatomy and physiology for the human Cardiovascular, Lymphatic, and Excretory systems. | <i>MS-LS 1-3</i> |
| CAN’T JUDGE A POWDER - 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> |
| CODEBUSTERS – 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 |
| CRIME BUSTERS – 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> |
| DISEASE DETECTIVES – 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> |
| DYNAMIC PLANET – 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> |
| ECOLOGY – Students will answer questions involving content knowledge and process skills in the area of ecology and adaptations in featured North American biomes. | <i>MS-LS2-1, MS-LS 2-2, MS-LS 2-3, MS-LS 2-4, MS-LS 2-5</i> |
| EXPERIMENTAL DESIGN – 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> |
| FAST FACTS - 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> |
| FLIGHT - 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> |
| FORESTRY - Participants will be assessed on their knowledge of trees found in the United States that are on the 2024 Official Science Olympiad National Tree List. | <i>MS-LS 1-4., MS-LS 4-2., MS-LS 4-3.</i> |
| FOSSILS – 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-ESS 2-3, MS-LS 4-1, MS-LS 4-2</i> |
| METEOROLOGY – 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> |
| MICROBE MISSION – Teams will answer questions, solve problems, and analyze data about microbes. | <i>MS-LS 1-1, MS-LS 1-6, MS-LS 1-7</i> |
| OPTICS – Teams will participate in an activity involving positioning mirrors to direct a laser beam towards a target and complete a written test on the principles of geometric and physical optics. | <i>MS-PS 4-1, MS-PS 4-2, MS-PS 4-3</i> |
| REACH FOR THE STARS – Participants will demonstrate an understanding of the formation and early-stage evolution of stars and their observation across the electromagnetic spectrum. | <i>MS-PS 4-1, MS-PS 4-2, HS-ESS 1-2, HS-ESS 1-3</i> |
| ROAD SCHOLAR – 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> |
| ROCKS AND MINERALS – 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> |

2024 NATIONAL SCIENCE OLYMPIAD STANDARDS ALIGNMENT BY EVENT
B DIVISION (MIDDLE SCHOOL; Grades 6-9)

| | |
|--|---|
| <p>ROLLER COASTER - 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.</p> | <p><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></p> |
| <p>TOWER – Teams will design and build a Tower (Structure) meeting requirements specified in these rules to achieve the highest structural efficiency.</p> | <p><i>MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3, MS-ETS 1-4</i></p> |
| <p>WHEELED VEHICLE - 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>WIND POWER – Teams construct a blade assembly device prior to the tournament that is designed to capture wind power and complete a written test on the principles of alternative energy.</p> | <p><i>MS-PS 2-3, MS-PS 3-1, MS-PS 3-5, MS-ESS 3-4, MS-ETS 1-1, MS-ETS 1-2, MS-ETS 1-3, MS-ETS 1-4</i></p> |
| <p>WRITE IT/DO IT – 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 Algorithms and Programming,</p> |