

**2010 NATIONAL SCIENCE OLYMPIAD – NATIONAL SCIENCE STANDARDS ALIGNMENT**

**B (Middle School) Division**

<b>B EVENTS</b>	<b>NATIONAL STANDARD</b>
<b>ANATOMY</b> – This event encompasses structure and function of the major parts of the skeletal and circulatory system and the effects of aging and disease on them.	M.C.1 – Structure and function in living systems M.F.1 – Personal health
<b>BATTERY BUGGY</b> – Teams will construct a vehicle that uses electrical energy as its sole means of propulsion, quickly travels a specified distance, and stops as close as possible to the center of the finish line.	M.E.1 – Abilities of technological design
<b>BIO-PROCESS LAB</b> – This event is a lab-oriented competition involving the fundamental science processes of a middle school biology lab program.	M.A.1 – Abilities necessary to do scientific inquiry
<b>CAN'T JUDGE A POWDER</b> – Students will test and characterize one pure substance and answer a series of questions about that substance.	M.B.1 – Properties and changes of properties in matter
<b>COMPUTE THIS</b> – This event integrates personal computing (PC) technology, the Internet, and quantitative data analysis. Teams are presented with a problem that requires quantitative data capture from the public Internet and the organization and presentation of data in a graphical format. Short answer questions related to the problem are also included.	M.A.1 – Abilities necessary to do scientific inquiry
<b>DISEASE DETECTIVES</b> – Students will use their investigative skills in the scientific study of disease, injury, health, and disability in populations or groups of people with a focus on the effects of population growth on public health outcomes.	H.F.1 – Personal and community health H.F.2 – Population growth H.G.1 – Science as a human endeavor
<b>DYNAMIC PLANET</b> – Students will use process skills to complete tasks related to earthquakes and volcanoes.	M.D.1 – Structure of the earth system H.D.1 – Energy in the earth system
<b>ECOLOGY</b> – Students will answer questions involving content knowledge and process skills in the area of ecology and adaptation in featured North American biomes.	M.C.4 – Populations and ecosystems
<b>ELEVATED BRIDGE</b> – The objective of this event is to design and build the most efficient bridge meeting the design specifications.	M.E.1 – Abilities of technological design
<b>ENVIRONMENTAL CHEMISTRY</b> – This event will focus on soil chemistry related to environmental chemistry.	H.F.4 – Environmental quality
<b>EXPERIMENTAL DESIGN</b> – This event will determine a team's ability to design, conduct, and report the findings of an experiment actually conducted on site.	M.A.1 – Abilities necessary to do scientific inquiry
<b>FOSSILS</b> – Teams will demonstrate their knowledge of ancient life by completing selected tasks at a series of stations. Emphasis will be on fossil identification and ability to answer questions about classification, habitat, ecologic relationships, behaviors and the use of fossils to date and correlate rock units.	M.D.2 – Earth's history H.D.3 – Origin and evolution of the earth system
<b>JUNKYARD CHALLENGE</b> – Competitors will construct a device on-site to solve a creative engineering challenge using only the materials and tools that will fit in a "junk box" of specified dimensions.	M.E.1 – Abilities of technological design
<b>METEOROLOGY</b> – This event emphasizes understanding of basic meteorological principles with emphasis on interpretation and analysis of meteorological data.	M.D.1 – Structure of the earth system H.D.1 – Energy in the earth system
<b>ORNITHOLOGY</b> – This event will test knowledge of North American birds.	H.C.3 – Biological evolution – classification

<b>B EVENTS</b>	<b>NATIONAL STANDARD</b>
<p><b>PENTATHLON</b> – Teams will complete in an academic pentathlon that will demonstrate the team’s overall understanding of the five major Science Olympiad content areas as they complete a challenge course.</p>	<p>M.B.1 – Properties and changes of properties in matter  M.B.2 – Motion and forces  M.B.3 – Transfer of energy  M.C.1 – Structure and function in living systems  M.C.2 – Reproduction and heredity  M.C.3 – Regulation and behavior  M.C.4 – Populations and ecosystems  M.C.5 – Diversity and adaptations of organisms  M.D.1 – Structure of the earth system  M.D.2 – Earth’s history  M.D.3 – Earth in the solar system</p>
<p><b>PHYSICAL SCIENCE LAB: WIND POWER</b> – Teams will build a rotor blade assembly (similar to a propeller) attached to a compact disc (CD), which will be used to capture wind power and generate voltage. They will also participate in an activity testing their knowledge about alternative energies.</p>	<p>M.E.1 – Abilities of technological design  H.F.6 – Science and technology in local, national, and global challenges</p>
<p><b>ROAD SCHOLAR</b> – Participants will respond to interpretative map questions based on one or more state highway maps, internet-generated maps, or a road atlas, and one or more USGS topographic maps.</p>	<p>M.U.2 – Evidence, models, and explanations</p>
<p><b>SCIENCE CRIME BUSTERS</b> – Given a scenario and some possible suspects, students will perform a series of tests, which along with other evidence or test results will be used to solve a crime.</p>	<p>M.A.1 – Abilities necessary to do scientific inquiry  M.B.1 – Properties and changes of properties in matter</p>
<p><b>SHOCK VALUE</b> – Students will compete in activities involving basic understanding of electricity, magnetism and simple electrical devices.</p>	<p>M.B.3 – Transfer of Energy</p>
<p><b>SOLAR SYSTEM</b> – This event will address the Sun, planets and their satellites, dwarf planets, comets, asteroids, the asteroid belt, meteoroids, Oort Cloud and the Kuiper Belt.</p>	<p>M.D.3 – Earth in the solar system</p>
<p><b>TRAJECTORY</b> – Teams will design, construct, calibrate, and shoot a device capable of launching a ball into a target area and collect data to develop a series of graphs relating launch configuration to target distance and height.</p>	<p>M.E.1 – Abilities of technological design</p>
<p><b>WRIGHT STUFF</b> – Teams will construct and test up to two rubber-powered monoplanes to achieve maximum flight times.</p>	<p>M.E.1 – Abilities of technological design</p>
<p><b>WRITE IT/DO IT</b> – This event will test a competitor’s ability to effectively communicate with a colleague in writing by having their partner construct a device from a written description.</p>	<p>M.E.1 – Abilities of technological design</p>