

2011 NATIONAL SCIENCE OLYMPIAD – NATIONAL SCIENCE STANDARDS ALIGNMENT

C (Senior High School) Division

C EVENTS	NATIONAL STANDARD
Anatomy & Physiology – This event encompasses the anatomy and physiology of selected body systems, this year limited to respiratory, muscular and endocrine systems.	M.C.1 – Structure and function in living systems H.F.1 – Personal and community health
Astronomy – Teams will demonstrate an understanding of the basic concepts of math and physics relating to galaxies.	H.D.4 – Origin and evolution of the universe
Chem Lab – Teams will demonstrate chemistry laboratory skills related to selected topics.	H.B.3 – Chemical reactions
Disease Detectives – This event requires students to apply principles of epidemiology to a published report of a real-life health situation or problem. (Food Borne Illness)	H.F.1 – Personal and community health H.F.2 – Population growth H.G.1 – Science as a human endeavor
Dynamic Planet – Teams will work at stations that display a variety of earth science materials and related earth science questions. (Earth's Fresh Waters)	M.D.1 – Structure of the earth system
Ecology – Teams will work at stations that display a variety of earth science materials and related earth science questions. (Earth's Fresh Waters)	H.C.4 – Interdependence of organisms H.C.5 – Matter, energy, and organization in living systems
Experimental Design – Given a set of unknown objects, teams will design, conduct, analyze and write-up an experiment.	H.A.1 – Abilities necessary to do scientific inquiry
Forensics – Students will identify polymers, solids, fibers, and other materials in a crime scenario.	H.A.1 – Abilities necessary to do scientific inquiry H.U.2 – Evidence, models, and explanation
Fossils – Students will identify, describe, and classify various specimens.	M.D.2 – Earth's history H.D.3 – Origin and evolution of the earth system
Helicopters – Students will construct and test free flight rubber-powered helicopters prior to the tournament to achieve maximum flight times.	H.E.1 – Abilities of technological design
Microbe Mission – Teams will answer questions, solve problems and analyze data pertaining to microbes.	H.C.1 – The cell
Mission Possible – Prior to the competition, participants will design, build, test and document a "Rube Goldberg-like device" that completes a required Final Task using a sequence of consecutive tasks.	H.E.1 – Abilities of technological design
Mousetrap Vehicle – Teams will design, build, and test a vehicle that uses one or two snap mousetraps as the sole propulsion energy source to travel a distance and return to the starting line center as quickly as possible.	H.E.1 – Abilities of technological design
Optics – Teams compete in activities and answer questions related to geometric and physical optics.	H.B.6 – Interactions of energy and matter M.B.3 – Transfer of Energy
Ornithology – This event will test knowledge of North American birds on the official list.	H.C.3 – Biological evolution
Protein Modeling – Students will use computer visualization and online resources to guide them in constructing physical models of proteins. For 2011, students will model proteins involved in reprogramming adult cells to become stem cells.	H.C.1 – The cell H.U.2 – Evidence, models, and explanation
Remote Sensing – Teams use maps and remote sensing technology to explain human impact on the Earth.	H.C.4 – Interdependence of organisms H.U.2 – Evidence, models, and explanation
Sounds of Music – Prior to the competition, students will build one wind instrument and one percussion instrument based on a 12 tone tempered scale, prepare to describe the principles behind their operation and be able to perform a major scale, a required melody and a chosen melody with each.	H.E.1 – Abilities of technological design
Sumobots – Teams will design and construct a robot (bot) that will attempt to move an opponent's robot from the ring.	H.E.1 – Abilities of technological design
Technical Problem Solving – Teams will gather and process data to solve problems.	H.A.1 – Abilities necessary to do scientific inquiry
Towers – Team members design and build the most efficient tower.	H.E.1 – Abilities of technological design

C EVENTS	NATIONAL STANDARD
<p>Wind Power – Teams will build a blade assembly that consists of any kind of propeller/pinwheel/rotor attached to a compact disc (CD) which will be used to capture wind power. Students will also be tested on their knowledge regarding alternative energy.</p>	<p>H.B.5 – Conservation of energy and increase in disorder H.E.1 – Abilities of technological design H.F.6 – Science and technology in local, national, and global challenges</p>
<p>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.</p>	<p>H.E.1 – Abilities of technological design</p>