

2012 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, excretory, and digestive systems.	M.C.1 – Structure and function in living systems H.F.1 – Personal and community health
Astronomy – Students will demonstrate an understanding of the basic concepts of math and physics relating to stellar evolution and Type Ia supernovas.	H.D.4 – Origin and evolution of the universe
Chemistry Lab – Students will demonstrate chemistry laboratory skills related to periodicity and oxidation/reduction.	H.B.3 – Chemical reactions H.B.2 – Structure and properties of matter
Disease Detectives – This event requires students to apply principles of epidemiology to a real-life health situation or problem with a focus on food borne illness.	H.F.1 – Personal and community health H.G.1 – Science as a human endeavor
Dynamic Planet – Students will work at stations that display a variety of Earth science materials related to Earth's fresh waters.	M.D.1 – Structure of the Earth system
Experimental Design – Given a set of objects, teams will design, conduct, analyze and write-up an experiment.	H.A.1 – Abilities necessary to do scientific inquiry
Fermi Questions – Students will estimate quantities which are difficult of impossible to measure.	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
Forestry – This event will test knowledge of North American trees on the official list.	H.C.3 – Biological evolution
Gravity Vehicle – Students will design, build, and test a vehicle that uses gravitational potential energy as the sole propulsion energy source to reach a target point.	H.E.1 – Abilities of technological design
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 – Students will answer questions, solve problems, and analyze data pertaining to microbes.	H.C.1 – The cell
Optics – Students 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
Protein Modeling – Students will use computer visualization and online resources to guide them in constructing physical models of proteins. For 2012, students will model proteins involved in the regulation of apoptosis.	H.C.1 – The cell H.U.2 – Evidence, models, and explanation
Remote Sensing – Students 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
Robot Arm – Students will design and construct a robot that will move items.	H.E.1 – Abilities of technological design
Rocks and Minerals – Students will identify, describe, and classify various specimens.	M.D.1 – Structure of the Earth system
Sounds of Music – Prior to the competition, students will build one wind instrument and one percussion instrument based on a 12 tone tempered scale, 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
Technical Problem Solving – Students will gather and process data to solve problems.	H.A.1 – Abilities necessary to do scientific inquiry
Thermodynamics – Students will design and build a device to retain heat.	M.E.1 – Abilities of technological design
Towers – Students will design and build the most efficient tower.	H.E.1 – Abilities of technological design
Water Quality – Students will evaluate aquatic environments.	H.A.1 – Abilities necessary to do scientific inquiry
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.	H.E.1 – Abilities of technological design