

Division C Event Descriptions

Anatomy and Physiology Participants will be assessed on their understanding of the anatomy and physiology for the human Skeletal, Muscular and Integumentary systems.

Astronomy Teams will demonstrate an understanding of Star and Galaxy Formation and Evolution.

Boomilever Teams will design and build a Boomilever meeting requirements specified in the rules supporting a minimum load and to achieve the highest structural efficiency.

Chemistry Lab Teams will complete one or more tasks and answer a series of questions involving the science processes of chemistry focused in the areas of Aqueous Solutions and Acids and Bases.

Circuit Lab Participants must complete tasks and answer questions about electricity and magnetism.

Code Busters Teams will cryptanalyze and decode encrypted messages using cryptanalysis techniques for historical and modern advanced ciphers.

Designer Genes Participants will solve problems and analyze data or diagrams using their knowledge of the basic principles of genetics, molecular genetics and biotechnology.

Detector Building Teams will build a durable temperature sensing device that will accurately measure and display temperatures between zero degrees Celsius to 75 degrees Celsius to determine the temperature of four different water samples.

Disease Detectives Students will use investigative skills in the scientific study of disease, injury, health and disability in populations or groups of people.

Dynamic Planet Teams will complete tasks related to physical and geological oceanography.

Experimental Design This event will determine a participant's ability on-site to design, conduct and report the findings of an experiment.

Forensics Given a scenario and some possible suspects, participants will perform a series of tests which along with other evidence or test results will be used to solve a crime.

Fossils Teams identify and classify fossils and demonstrate their knowledge of ancient life by completing tasks related to interpretation of past environments and ecosystems, adaptations and evolutionary relationships, and use of fossils in dating and correlating rock units.

GeoLogic Mapping Teams will demonstrate understanding in the construction and use of topographic maps, geologic maps, and cross sections, and their use in forming interpretations regarding subsurface structures and past depositional environments.

Gravity Vehicle Teams design, build and test one Vehicle and Ramp that uses the Vehicle's gravitational potential energy as its sole means of propulsion to reach a target as quickly and accurately as possible.

Machines Teams will complete a written test on simple and compound machine concepts and construct a lever-based measuring device prior to the tournament to determine the ratio between two masses.

Ornithology Participants will be assessed on their knowledge of North American birds.

Ping Pong Parachute 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.

Protein Modeling Students will use computer visualization and online resources to construct a physical model of a protein that is being used with CRISPR Cas9 to edit plant and animal genomes. This year's event will focus on modifications to Cas9 that make it useful for base-editing.

Sounds of Music Teams must construct and tune one device prior to the tournament based on a two-octave 12-tone equal tempered scale and complete a written test on the physics of sound and music concepts.

Water Quality Participants will be assessed on their understanding and evaluation of marine and estuary aquatic environments.

Wright Stuff Prior to the competition teams design, construct and test free flight rubber-powered monoplanes or biplanes to achieve maximum time aloft.

Write It Do It One student will write a description of an object and how to build it, and then the other student will attempt to construct the object from the description.