

# IDAHO SCIENCE OLYMPIAD 2023-2024 DIVISION B (6-9 GRADE) EVENTS

## BSU APRIL 20, 2024, ISU POCATELLO: APRIL 13, 2024

See [www.idahoscioly.org](http://www.idahoscioly.org)

**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.

**ANATOMY AND PHYSIOLOGY:** Participants will be assessed on their understanding of the anatomy and physiology for the human Cardiovascular, Lymphatic, and Excretory systems.

**CAN'T JUDGE A POWDER:** Students will test and characterize one pure substance and then, based only on data they collect, answer a series of questions about that substance. Students will not be asked to identify the substance. Emphasis of this event is on the quality of data collected, answering questions about the substance and providing data to support their answers.

**CODEBUSTERS:** Teams will cryptanalyze and decode encrypted messages using cryptanalysis techniques for historical and modern advanced ciphers.

**CRIME BUSTERS:** Given a scenario, a collection of evidence, & possible suspects, students will perform a series of tests. Test results along with other evidence will be used to solve a crime and answer questions.

**DISEASE DETECTIVES:** Participants will use investigative skills in the scientific study of disease, injury, health and disability in populations or groups of people.

**DYNAMIC PLANET:** Participants will demonstrate an understanding of the large-scale processes affecting the structure of Earth's crust.

**ECOLOGY:** Participants will answer questions involving content knowledge and process skills in the area of ecology and adaptations in featured North American biomes.

**EXPERIMENTAL DESIGN:** This event will determine a participant's ability to design, conduct and report the findings of an experiment entirely on-site.

**FAST FACTS:** Teams will fill in a grid of terms that begin with a given letter to match given science categories.

**FLIGHT:** Prior to the tournament, teams will construct, collect data on test flights, analyze and optimize a free flight rubber-powered aircraft to achieve maximum time aloft.

**FORESTRY:** Participants will be assessed on their general forestry knowledge and the trees found in the United States that are on the 2024 Official Science Olympiad National Tree List.

**FOSSILS:** Teams identify and classify fossils and demonstrate their knowledge of ancient life. Tasks will be related to interpretation of past environments and ecosystems, adaptations, evolutionary relationships, and the use of fossils in dating and correlating rock units.

**METEOROLOGY:** Participants will use scientific process skills involving qualitative and quantitative analyses to demonstrate an understanding of the factors that contribute, cause and influence Severe Weather and Storms.

**MICROBE MISSION:** Teams will answer questions, solve problems and analyze data pertaining to microbes.

**OPTICS:** Teams must participate in an activity involving positioning mirrors to direct a laser beam towards a target and are tested on their knowledge of geometric and physical optics.

**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.

**ROAD SCHOLAR:** Participants 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.

**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.

**TOWER:** Teams will design and build a Tower (Structure) meeting requirements specified in these rules to achieve the highest structural efficiency.

**WHEELED VEHICLE:** Teams must design, build, and test one Vehicle that uses a non-metallic, elastic material as its sole means of propulsion to travel a distance as quickly and accurately as possible.

**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.

**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 this description.

# SCIENCE OLYMPIAD 2023-2024 DIVISION C (9-12 GRADE) EVENTS

## BOISE STATE UNIVERSITY APRIL 20, 2024

See [www.idahoscioly.org](http://www.idahoscioly.org)

**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.

**ANATOMY AND PHYSIOLOGY:** Participants will be assessed on their understanding of the anatomy and physiology for the human Cardiovascular, Lymphatic, and Excretory systems.

**ASTRONOMY:** Teams will demonstrate an understanding of Stellar Evolution: Star Formation, & Exoplanets.

**CHEM 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 Periodicity and Equilibrium.

**CODEBUSTERS:** Teams will cryptanalyze and decode encrypted messages using cryptanalysis techniques for historical and modern advanced ciphers.

**DETECTOR BUILDING:** Teams will build a durable ORP or Redox Probe that will accurately measure and display both voltage and the concentrations of NaCl in parts per million from 0 to 5000 ppm of 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:** Participants will demonstrate an understanding of the large-scale processes affecting the structure of Earth's crust.

**ECOLOGY:** Students will answer questions involving content knowledge and process skills in the area of ecology and adaptations in featured North American biomes.

**EXPERIMENTAL DESIGN:** This event will determine a participant's ability to design, conduct and report the findings of an experiment entirely on-site.

**FERMI QUESTIONS:** Teams provide answers to a series of "Fermi Questions"; science related questions that seek fast, rough estimates of a quantity, which is either difficult or impossible to measure directly.

**FLIGHT:** Prior to the tournament, teams will construct, collect data on test flights, analyze and optimize a free flight rubber-powered aircraft to achieve maximum time aloft.

**FORENSICS:** Given a scenario and some possible suspects, students will perform a series of tests. These tests, along with other evidence or test results, will be used to solve a crime.

**FORESTRY:** Participants will be assessed on their general forestry knowledge and the trees found in the United States that are on the 2024 Official Science Olympiad National Tree List.

**FOSSILS:** Teams identify and classify fossils and demonstrate their knowledge of ancient life. Tasks will be related to interpretation of past environments and ecosystems, adaptations, evolutionary relationships, and the 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 on Earth and other planetary bodies.

**MICROBE MISSION:** Teams will answer questions, solve problems and analyze data pertaining to microbes.

**OPTICS:** Teams must participate in an activity involving positioning mirrors to direct a laser beam towards a target and are tested on their knowledge of geometric and physical optics.

**ROBOT TOUR:** Teams design, build, program and test one Robotic Vehicle to navigate a track to reach a target at a set amount of time as accurately and efficiently as possible.

**SCRAMBLER:** Teams design, build, and test a mechanical device, which uses the energy from a falling mass to transport an egg along a straight track as quickly as possible and stop as close to the center of a Terminal Barrier (TB) without breaking the egg.

**TOWER:** Teams will design and build a Tower (Structure) meeting requirements specified in these rules to achieve the highest structural efficiency.

**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.

**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.