

Colorado Science and Engineering Fair Category Descriptions

Animal Sciences:

The study of animals (vertebrates and invertebrates). For example – animal development, animal ecology, animal genetics, animal husbandry, animal pathology, animal physiology, animal systematics, biochemistry related to animals, animal cellular & molecular biology, etc.

Behavioral & Social Sciences:

The science or study of the thought processes and behavior of humans and other animals in their interactions with the environment studied through observational and experimental methods. For example – clinical & developmental psychology, cognitive psychology, physiological psychology, sociology, etc.

Chemistry:

The science of the composition, structure, properties and reactions of matter, especially of atomic and molecular systems. For Example – analytical chemistry, inorganic chemistry, organic chemistry, physical chemistry, general chemistry, general biochemistry, biochemical metabolism, structural biochemistry, etc.

Earth & Space Sciences:

The study of sciences related to the Earth and anything in the universe beyond the Earth. For example – climatology, weather, geochemistry, geology, petrology, mineralogy, paleontology, geophysics, landforms, tectonics, theoretical or computational astronomy, observational astronomy, cosmology, etc.

Energy & Transportation:

The study of renewable energy sources, energy efficiency, clean transport and alternative fuels. For Example – aerodynamics, alternative fuels, fossil fuel energy, vehicle development, solar, renewable energy, etc.

Engineering:

The application of scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical structures, processes and systems. For example – bioengineering, civil engineering, construction engineering, chemical engineering, industrial engineering and processing, material science, electrical engineering, computer engineering, mechanical engineering, aerospace & aeronautical engineering, thermodynamics, robotics, etc.

Environmental Sciences:

The study of pollution sources and their control, ecology and conservation. For example – air pollution & quality, soil contamination & quality, water pollution & quality, bioremediation, ecosystems management, environmental engineering, land resource management, forestry, recycling, waste management, etc.

Mathematics & Computer Sciences:

The study of the measurement, properties and relationships of quantities and sets, using numbers and symbols. The deductive study of numbers, geometry and various abstract constructs or structures. The study of information processes, the structures and procedures that represent processes and their implementation in information processing systems. For example – algebra, analysis, applied mathematics, geometry, probability & statistics, algorithms, data bases, artificial intelligence, networking & communications, computational science, computer graphics, software engineering, programming languages, computer systems, operating systems, etc.

Medicine & Health:

The science of diagnosing, treating or preventing disease and other damage to the body or mind.. For example – dentistry, pathology, nutrition, allergies, blood, protein & food chemistry, epidemiology, human genetics, molecular biology of diseases, human physiology & pathophysiology, biochemistry related to humans, human cellular & molecular biology, immunology, etc.

Microbiology:

The study of micro-organisms and antibiotic substances. For example – antibiotics, antimicrobials, bacteriology, microbial genetics, virology, etc.

Physics:

The science of matter and energy and the interactions between the two. For example – atoms, molecules, solids, biological physics, instrumentation & electronics, magnetics & electromagnetics, nuclear & particle physics, optics, lasers, masers, theoretical physics, etc.

Plant Sciences:

The study of plant life. For example – agriculture/agronomy, plant development, plant ecology, plant genetics, photosynthesis, plant physiology (molecular, cellular, & organismal), plant systematics, plant evolution, biochemistry related to plants, horticulture, etc.

Team Projects:

Studies conducted by two or three students in any discipline.