

## Project Judging Category Descriptions

### High School Grades 9-12 Division Categories:

-Research categories that involve humans, animals, or their tissues, microorganisms, potentially hazardous chemicals, activities or devices with possible safety issues require: a designated (teacher/parent/guardian with some expertise using these items) to oversee experimentation and need the research plan to have pre-experimental safety approval by the fair safety committee – these types of projects have an early application date to give time for approval and subsequent experimentation.

1. **Animal Science (AS)** - Study of animals and animal life, including the study of the structure, physiology, development, and classification of animals. Including animal: ecology, physiology, husbandry, cytology, histology, entomology, ichthyology, ornithology, herpetology, etc., population genetics, systematics
2. **Behavioral Science (BE)** - 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. Including: clinical or developmental psychology, cognitive psychology, physiological psychology, sociology.
3. **Biological Science (BS)** - The study of the chemical substances and vital processes occurring in living organisms, the processes by which these substances enter into, or are formed in, the organisms and react with each other and the environment. including biology, biochemistry & metabolism, structural biochemistry, cellular & molecular biology, microbiology.
4. **Plant Sciences (BOT)** - Study of plant life. Including plant: ecology, agronomy, horticulture, taxonomy, physiology, development, photosynthesis, pathology, genetics, systematics, evolution, hydroponics, algae, etc.
5. **Physics (PH)** - including physical science, physics, chemistry (inorganic), earth science, planetary science, astronomy
6. **Medicine and Health (MH)**- The science of diagnosing, treating, or preventing disease and other damage to the body or mind. Including: epidemiology, genetics, molecular biology of disease, physiology and pathophysiology.
7. **Environmental Science and Environmental Management (ENV)** -The analysis of existing conditions of the environment including air/soil/water pollution and air/soil/water quality, and/or The study of managing mans' interaction with the environment including: bioremediation, ecosystems management, environmental engineering, land resource management, forestry, recycling, waste management.
8. **Engineering (ENG)** - The application of scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical machines and systems. Including engineering, chemical, civil, construction, electrical & mechanical engineering, materials science and bio-engineering
9. **Chemistry (CH)** – Inorganic/Organic - Studies in which chemical properties of materials are observed. Some studies involving physical properties are appropriate, including phase changes, crystal structures and formation, intermolecular and intramolecular forces.
10. **Computer Science and Mathematics (CM)** - The study of information processes, the structures and procedures that represent processes, and their implementation in information processing systems. It includes systems analysis and design, application and system software design, programming, and datacenter operations. Including: algorithms, data bases, artificial Intelligence, networking and communications, computational science, computer graphics, software engineering, programming languages, computer and operating systems. and/or 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. Mathematics is very broadly divided into foundations, algebra, analysis, geometry, and applied mathematics, which includes theoretical computer science.

### **Middle School Grades 6-8 Division Categories:**

-Research categories that involve humans, animals, or their tissues, microorganisms, potentially hazardous chemicals, activities or devices with possible safety issues require: a designated (teacher/parent/guardian with some expertise using these items) to oversee experimentation and need the research plan to have pre-experimental safety approval by the fair safety committee – these types of projects have an early application date to give time for approval and subsequent experimentation.

1. **Alternative Energy (MS-AE)** - Studies of power generation using alternative energy technologies such as solar cells.
2. **Behavioral Science (MS-BE)** - Studies of human or animal psychology, behavior, development, linguistics, and the effects of chemical or physical stress on these processes. Observational studies of attitudes, behaviors, or values of a society or groups within a society, and of the influences of society on group behavior. Includes gender and diversity studies, anthropology, archaeology, and sociology. Studies may focus on either normal or abnormal behavior.
3. **Biological Science (MS-BS)** - The study of the chemical substances and vital processes occurring in living organisms, the processes by which these substances enter into, or are formed in, the organisms and react with each other and the environment. including biology, biochemistry & metabolism, structural biochemistry, cellular & molecular biology, microbiology, ecology, botany, environmental science.
4. **Chemistry - Inorganic (MS-CH)** - Studies in which chemical properties of non-biological inorganic materials (excluding biochemistry) are observed. Some studies involving physical properties are appropriate, including phase changes, crystal structures and formation, intermolecular and intramolecular forces. Chemical experiments require Pre-experimental safety approval by SRC/IRB.
5. **Engineering (MS-EG)** - The application of scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical machines and systems. Including engineering, chemical, civil, construction, electrical & mechanical engineering, materials science and bio-engineering
6. **Math and Computer Science (MS-MC)** - Studies in geometry, topology, real and complex analysis, number theory, algorithm analysis and optimization, artificial intelligence, computability, computer graphics, modeling and simulation, programming environments and languages. Computer simulations of physical systems are appropriate in this category.
7. **Physics (MS-PH)** - Studies of the physical properties of matter, light, acoustics, thermal properties, solar physics, astrophysics, orbital mechanics.