Description of County Science Fair Project Categories

1. Applied Mechanics, Structures, & Mechanisms Manufacturing: Design, manufacture, and operation of structures and mechanisms. Characteristics of structures and materials, including strength, flexibility, dynamic response. Active and passive control of structures and systems. Fatigue and fracture evaluations, elastic/plastic material characteristics.

2. Behavioral Sciences: Psychology, psychiatry, behavior, learning and conditioned responses in humans and other animals. Effect of chemical or physical stress on mental processes. For the Senior Division, sociology, anthropology, archaeology

.3. Biochemistry/ Molecular Biology: Analysis, at the molecular level, of the biochemical and physiological pathways of plants, animals (including humans) and microorganisms.

4. Chemistry: Observation of chemical and physical properties of organic and inorganic materials (excluding biochemistry). Characterization of chemical products found in everyday life. (This characterization does not imply knowledge of the chemical structure of products being tested).

5. Earth Science/Planetary Sciences/Physical Environments: Surficial geology, geophysics, seismology, engineering geology, earthquake engineering, atmospheric physics, physical oceanography, marine geology, coastal processes, comparative planetology. Studies of environmental factors not related to living things. Effects of human activity on naturally occurring physical phenomena.

6. Electricity & Electronics: Electrical circuits, computer design, electro-optics, electromagnetic applications, power engineering.

7. Environmental Engineering: Projects which apply technologies such as recycling, reclamation, restoration, composting, and bioremediation to control the environment and/or the effects of pollution on the environment.

8. Fluid Mechanics/ Aerodynamics/ Thermophysics: Aerodynamics and propulsion of air, land, sea, and space vehicles; aero/hydrodynamics of structures and natural objects; acoustics; thermodynamics of energy production, energy utilization, and other industrial processes. Basic physics of fluid flow.

9. Mathematics & Software: Pure and applied mathematics such as geometry, topology, real and complex analysis, number theory. Algorithm analysis and optimization, artificial intelligence, computability, computer graphics, modeling and simulation, programming environments and languages.

10. Microbiology: Studies of growth, physiology, genetics, and epidemiology of bacteria, viruses, protozoa, and yeast.

11. Pharmacology/ Toxicology: Effect of any drug or chemical on plants, animals, bacteria, and humans. Studies may be at the cellular or organism level.

12. Physics & Astronomy: Experimental or theoretical studies of the physical properties of matter, solar physics, astrophysics, orbital mechanics, observational astronomy, astronomical surveys. Computer simulations of physical systems are appropriate in this category.

13. Physiology: Studies of the function of major organ systems of mammals including neurobiology, sensory biology, reproduction, immunology, and disease pathology.

14. Plant Biology: Taxonomy, growth, morphology, physiology, genetics, and pathology of plants and algae.

15. Social Sciences (Junior/Middle School Division Only): Sociology, anthropology, archaeology, behavior, learning, conditioned responses, surveys of attitudes and values of groups within society.

16. Zoology: Studies of the origin, growth, reproduction, genetics, and morphology of animals, birds, and insects. Studies of animals and their behavior in their natural habitat (or reproductions of it).

17. Team Projects: Projects on which two to four students have participated and are named on the project as its authors. This category is undifferentiated with respect to subject category — all subjects are included here.

Additional Guidelines for Reseda High School Science Fair Projects

Team projects must clearly demonstrate the synergistic effort of every member of the group. This means that each group project should clearly represent and demonstrate scientific research, effort and investigation (by every member) that, in sum, exceed the effort done by an equivalent number of individual projects. Team projects that do not exceed the effort and scope of individual projects may not be judged.

Projects involving live vertebrate animals, of any type, are highly discouraged, unless done in conjunction with a college, university or other kind of certified public or private research institution. Certified animal care personnel must oversee the care and treatment of animals involved. Projects involving common family pets, dogs, cats, rats, ferrets, etc. are also discouraged because it is extremely difficult to properly certify such experiments performed at home. Please consult the Science Fair Coordinator before choosing projects involving vertebrate animals.

Projects involving the expenditure of large amounts of money are discouraged.

Projects involving the testing or comparison of products will be placed into the project category that best fits the scientific research and procedures involved. For example testing the effect of various commercial cleaners on the growth of bacteria would be a Pharmacology/Toxicology Project. Testing the strength or absorbency of various paper towels would be an Applied Mechanics, Structures and Mechanisms project. Testing the ph of various hair products would be a Chemistry project. Teachers should review project categories.

All required LA County/State of California certification forms must be completed before any experimental work of any kind begins. Required certification forms CANNOT be completed after experimentation begins or after the project is completed.