

2017 – 2018 GSDSEF CATEGORIES AND DESCRIPTIONS

Category descriptions have been adapted from the Intel ISEF Handbook. Final placement will be resolved by the SRC.

- 1. Animal Sciences:** Study of animal behavior, classification, development, pathology, taxonomy; animal ecology, animal genetics, animal husbandry, circadian rhythms, cytology, entomology, herpetology, histology, ichthyology, ornithology, paleontology, physiology, studies of invertebrates, etc.
- 2. Behavioral & Social Sciences:** Human behavior, social and community relationships; anthropology, archaeology, circadian rhythms, educational testing, ethnology, learning, linguistics, perception, psychology, sociology, urban issues, etc.
- 3. Biochemistry:** Chemistry of life processes; enzymes, food chemistry, hormones, metabolism, molecular biology, molecular genetics, photosynthesis, protein chemistry, etc.
- 4. Chemistry:** Study of nature and composition of matter and laws governing it; fuels; inorganic chemistry, organic chemistry (other than biochemistry), physical chemistry; materials, metallurgy, pesticides, plastics, soil chemistry, etc.
- 5. Computer Science:** Study and development of computer hardware; programming languages; networking and communications; robotics control systems; simulations/virtual reality or computations science (including data structures, encryption, coding and information theory); algorithms, artificial intelligence, data bases, graphics, software engineering, etc.
- 6. Earth & Planetary Science:** Climatology, geography, geology, geophysics, meteorology, mineralogy, oceanography, paleontology, physiography, seismology, speleology, tectonics, etc.
- 7. Engineering, Electrical & Mechanical:** Computer engineering, controls, electrical engineering, mechanical engineering, robot mechanics, solar electric generation, thermodynamics, etc.
- 8. Engineering, Energy & Transport:** Aerodynamics, aerospace and aeronautical engineering, alternative fuels, automotive & marine vehicle development, fossil fuel energy, heating & refrigeration, renewable energies, solar heating, wind energy, etc.
- 9. Engineering, Materials & Bioengineering:** Acoustics, bioengineering, civil & construction engineering, chemical engineering, environmental engineering, ergonomics, industrial engineering & processing, material science, etc.
- 10. Environmental Sciences & Management:** Air pollution and air quality, bioremediation (i.e., oil spill cleanup, etc.), ecology,
- 11. Mathematical Sciences:** Science of numbers and their operations; algorithms, development of formal logical systems or various numerical and algebraic computations and the application of these principles; algebra, calculus, complex analysis, geometry, number theory, probability, statistics, etc.
- 12. Medicine & Health Sciences:** Study of diseases and health of humans; allergies, cellular & molecular biology, dermatology, dentistry, epidemiology, genetics, immunology, nutrition, ophthalmology, pathology, pediatrics, pharmacology, physiology, sanitation, speech and hearing, etc.
- 13. Microbiology:** Biology of microorganisms; antibiotics/microbials, bacterial genetics, bacteriology, fungi, molds, protozoology, virology, yeast, etc.
- 14. Physics & Astronomy:** Theories, principles and laws governing energy and the effect of energy on matter; acoustics; atoms, molecules, nuclear, plasma, solids; biophysics; fluid and gas dynamics; instrumentation and electronics; magnetism; optics, lasers, masers; particle, quantum mechanics; semiconductors, solid state, superconductivity, thermodynamics; theoretical or computational astronomy, planetary science, etc.
- 15. Plant Sciences:** Study of plant life; agriculture/agronomy, algae, circadian rhythms, ecology, forestry, horticulture, hydroponics, plant evolution, plant genetics, plant pathology, plant physiology, plant taxonomy, etc.
- 16. Product Testing/Consumer Science (JUNIOR DIVISION ONLY):** Quality control, comparison studies of product designs; using accepted scientific tests to obtain quantifiable results, etc.