

WV Science and Engineering Fair

Middle School Categories

The twelve categories (Animal Science, Plant Science, Behavioral and Social Science, Medical Science, Chemistry, Physics and Astronomy, Engineering, Material Science, Math and Data, Earth and Environmental Science, Energy Science, and Technology) have been established with the goal of better aligning judges and student projects. The twelve categories, underlined and in red, are based on the ISEF categories, which are shown in black for informational purposes. Visit the ISEF website at <http://bit.ly/ISEFcat> for a complete description of the ISEF categories.

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| <p><u>ANIMAL SCIENCE</u> which includes: ANIMAL SCIENCES (ANIM)</p> <ul style="list-style-type: none"> • Animal Behavior • Cellular Studies • Development • Ecology • Genetics • Nutrition & Growth • Physiology • Systematics & Evolution <p>CELLULAR & MOLECULAR BIOLOGY (CELL)</p> <ul style="list-style-type: none"> • Cell Physiology • Cellular Immunology • Genetics • Molecular Biology <p>COMPUTATIONAL BIOLOGY & BIOINFORMATICS (CBIO)</p> <ul style="list-style-type: none"> • Computational Biomodeling • Computational Epidemiology • Computational Evolutionary Biology • Computational Neuroscience • Computational Pharmacology • Genomics • Neurobiology <p><u>PLANT SCIENCE</u> which includes: PLANT SCIENCES (PLNT)</p> <ul style="list-style-type: none"> • Agriculture & Agronomy • Ecology • Genetics/Breeding • Growth & Development • Pathology • Plant Physiology • Systematics & Evolution <p>CELLULAR & MOLECULAR BIOLOGY (CELL)</p> <ul style="list-style-type: none"> • Cell Physiology • Cellular Immunology • Genetics • Molecular Biology <p><u>BEHAVIORAL AND SOCIAL SCIENCE</u> which includes: BEHAVIORAL & SOCIAL SCIENCES (BEHA)</p> <ul style="list-style-type: none"> • Clinical & Developmental Psychology • Cognitive Psychology • Neuroscience • Physiological Psychology • Sociology & Social Psychology | <p><u>MEDICAL SCIENCES</u> which includes: BIOMEDICAL & HEALTH SCI (BMED)</p> <ul style="list-style-type: none"> • Cell, Organ, & Systems Physiology • Genetics & Molecular Biology of Disease • Immunology • Nutrition & Natural Products • Pathophysiology <p>TRANSLATIONAL MED SCI (TMED)</p> <ul style="list-style-type: none"> • Disease Detection & Diagnosis • Disease Prevention • Disease Treatment & Therapies • Drug Identification & Testing • Pre-Clinical Studies <p><u>PHYSICS AND ASTRONOMY</u> which includes: PHYSICS & ASTRONOMY (PHYS)</p> <ul style="list-style-type: none"> • Astronomy & Cosmology • Atomic, Molecular, & Optical Physics • Biological Physics • Condensed Matter & Materials • Mechanics • Nuclear & Particle Physics • Theoretical, Computational & Quantum Physics <p><u>CHEMISTRY</u> which includes: CHEMISTRY (CHEM)</p> <ul style="list-style-type: none"> • Analytical Chemistry • Computational Chemistry • Environmental Chemistry • Inorganic Chemistry • Materials Chemistry • Organic Chemistry • Physical Chemistry <p>BIOCHEMISTRY (BCHM)</p> <ul style="list-style-type: none"> • Analytical Biochemistry • General Biochemistry • Medical Biochemistry • Structural Biochemistry | <p><u>ENGINEERING</u> which includes: BIOMEDICAL ENG. (ENBM)</p> <ul style="list-style-type: none"> • Biomaterials & Regen Medicine • Biomechanics • Biomedical Devices • Biomedical Imaging • Cell & Tissue Engineering • Synthetic Biology <p>MECHANICS ENG. (ENMC)</p> <ul style="list-style-type: none"> • Aerospace & Aeronautical Engineering • Civil Engineering • Computational Mechanics • Control Theory • Ground Vehicle Systems • Industrial Engineering-Processing • Mechanical Engineering • Naval Systems <p>ENVIRONMENTAL ENG. (ENEV)</p> <ul style="list-style-type: none"> • Bioremediation • Land & Reclamation • Pollution Control • Recycling & Waste Management • Water Resources Management <p><u>MATERIAL SCIENCE</u> which includes: MATERIALS SCIENCE (MATS)</p> <ul style="list-style-type: none"> • Biomaterials • Ceramic & Glasses • Composite Materials • Computation & Theory • Electronic, Optical & Magnetic • Materials • Nanomaterials • Polymers <p><u>MATH AND DATA</u> which includes: MATHEMATICS (MATH)</p> <ul style="list-style-type: none"> • Analysis • Combinatorics, Graph Theory, & Game Theory • Geometry & Topology • Number Theory • Probability & Statistics | <p><u>EARTH AND ENVIRONMENTAL SCIENCE</u> which includes: EARTH & ENVIRONMENTAL SCIENCES (EAEV)</p> <ul style="list-style-type: none"> • Atmospheric Science • Climate Science • Environmental Effects on Ecosystems • Geosciences • Water Science <p><u>ENERGY</u> which includes: CHEMICAL (EGCH)</p> <ul style="list-style-type: none"> • Alternative Fuels • Computational Energy Science • Fossil Fuel Energy • Fuel Cells & Battery Develop • Microbial Fuel Cells • Solar Materials Other <p>PHYSICAL (EGPH)</p> <ul style="list-style-type: none"> • Hydro Power • Nuclear Power Solar • Sustainable Design • Thermal Power • Wind <p><u>TECHNOLOGY AND SYSTEMS</u> which includes: ROBOTICS & INTELLIGENT MACHINES (ROBO)</p> <ul style="list-style-type: none"> • Biomechanics • Cognitive Systems • Control Theory • Machine Learning • Robot Kinematics <p>SYSTEMS SOFTWARE (SOFT)</p> <ul style="list-style-type: none"> • Algorithms • Cybersecurity • Databases • Human/Machine Interface • Languages & Operating Systems • Mobile Apps • Online Learning <p>EMBEDDED SYSTEMS (EBED)</p> <ul style="list-style-type: none"> • Circuits • Internet of Things • Microcontrollers • Networking & Data • Communications • Optics • Sensors • Signal Processing |
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