

Categories Descriptions and Connected Occupations

The chart below was adapted from the Florida State Science and Engineering Fair category descriptions (<https://ssefflorida.com/categories/>). Teachers can use this chart with students to connect student projects to real-world science, engineering, and computer science fields.

Science Division

Category	Description
Animal Sciences	<p>This category addresses the study of all aspects of animals (including humans) and animal life, animal life cycles, and animal interactions with one another or with their environment. It also includes the study of the thought processes and behavior of humans and other animals in their interactions with the environment.</p> <p>Science fields:</p> <ul style="list-style-type: none"> ● physiology ● animal ecology ● animal husbandry ● mammalogy (mammals) ● entomology (insects) ● ichthyology (fish) ● ornithology (birds) ● herpetology (reptiles and amphibians) ● neurobiology (relationship between the nervous system, especially the brain, and other organs of the body)
Plant Sciences	<p>This category includes any project dealing with plants and how they live.</p> <p>Science fields:</p> <ul style="list-style-type: none"> ● agriculture/aquaculture ● growth and development ● ecology ● genetics/breeding ● physiology
Microbiology	<p>The microbiology category covers the study of microorganisms, including bacteria, fungi, prokaryotes, and simple eukaryotes, as well as antimicrobial substances.</p> <p>Science fields:</p> <ul style="list-style-type: none"> ● antimicrobial ● applied microbiology ● bacteriology ● environmental microbiology ● microbial genetics
Earth and Environmental Sciences	<p>This category focuses on Earth and the environment. It also includes meteorology and climate sciences.</p> <p>Science fields:</p> <ul style="list-style-type: none"> ● atmospheric Science and Meteorology ● climate Science ● environmental Effects on Ecosystems ● geosciences (DO NOT JUST BUILD A MODEL OF A VOLCANO!!) ● water science

Chemistry	<p>Studies exploring the science of the composition, structure, properties, and reactions of matter not involving biochemical systems are included in the Chemistry category.</p> <p>Science fields:</p> <ul style="list-style-type: none"> ● environmental chemistry ● inorganic chemistry ● materials chemistry ● organic chemistry ● physical chemistry
Physics and Astronomy	<p>Physics is the science of matter and energy and of the interactions between the two. Astronomy is the study of anything in the universe beyond the Earth. This category would also include studies of renewable energy structures (wind or hydroelectric turbine, photovoltaic cell, etc.) and/or processes, including energy production and efficiency.</p> <p>Science fields:</p> <ul style="list-style-type: none"> ● optical physics ● astronomy and cosmology ● biological physics ● astrophysics ● instrumentation ● magnetics and electromagnetics ● mechanics ● optics, lasers ● hydroelectric power ● solar ● thermal power ● wind

Engineering Division

Environmental Engineering	<p>This category deals with engineering or developing processes and tools to solve environmental problems. This is different from Environmental Sciences, as science deals with why and how events are occurring in the environment, while engineering deals with developing solutions to problems in the environment</p> <p>Engineering fields:</p> <ul style="list-style-type: none"> ● bioremediation ● land Reclamation ● pollution control ● recycling and waste management ● water resources management ● invasive species management
Engineering Mechanics	<p>This category focuses on the engineering that involves movement or structures.</p> <p>Engineering fields:</p> <ul style="list-style-type: none"> ● aerospace and aeronautical engineering ● circuits ● civil engineering ● ground vehicle systems ● industrial engineering-processing ● mechanical engineering ● naval systems

Computer Science Division

Robotics and Intelligent Machines	For this category, projects use machine intelligence to complete a task or reduce the reliance on human intervention. Science fields: <ul style="list-style-type: none">● biomechanics● cognitive systems● robot kinematics
Coding	This category focuses on the study or development of software, information processes or methodologies to demonstrate, analyze, or control a process/solution. Science fields: <ul style="list-style-type: none">● algorithms● cybersecurity● databases● programming languages● operating systems● machine learning● application development

BPS link to Science Research:

<https://sites.google.com/a/share.brevardschools.org/brevard-science-research/home>

BPS Secondary Handbook:

<https://drive.google.com/file/d/1RCezPMq-IFluyWg15w9cS9KeguD1Vler/view>

<https://ssefflorida.com/categories/#1>